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A Study On The Growth And Trend Of Indian GDP And Its Components

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Abstract

Economists have done a lot of research studies on the topic of economic growth in general. They have contributed to understand of the idea of economic growth, as well as its drivers, measurement, policy, and impacts. The primary factors that determine economic development have evolved to meet the requirements of a shifting context and way of thinking; the environment must be given a preeminent place in the definition of "economic growth" when applied to the setting of the modern day and age. Economic growth in the truest sense would involve increasing productivity along with the protection and development of natural resources and the environment. Increasing productivity through investments in infrastructure development and technological advancement at the expense of the environment that results in unfavourable environmental, social, economic, and political conditions is not economic growth. The measurement of inclusive growth makes it easier to evaluate growth in its truest form. The term "economic growth" refers to a process that takes place over the course of a lengthy period of time and signifies a rise in the overall production and revenue of a country. The Indian Gross Domestic Products and the components of the GDP from 2014-2015 to 2020-21 (base years 2011-2012) have been collected from the web site of the National Statistical Office (NSO). The data gives more information about the Indian economy and the role of the components of GDP of the study period (2014-2015 to 2020-2021).

Keywords: Growth and trend of Indian GDP and its components.

Introduction

Economists differentiate between short-term economic stability and long-term economic growth based on the short-run changes in national production, which are referred to as business cycles (Barro1997)[1]. The concept of "economic growth" is distinct from the concept of "economic development": economic growth is a specific concept because it is solely focused on the level of national output, whereas economic development is a general concept because it is focused on the level of national output as well as the quality of life. The term "intensive growth" refers to a situation in which a higher level of growth is achieved via the more effective utilisation of inputs. The term "extensive growth" refers to the rise in GDP that is produced solely by increases in inputs such as capital, population, or territory (Bjork 1999) [2] . However, it is now widely acknowledged that economic expansion also corresponds to a process of continuous fast activity substitution and reorganisation of human activities. This process is made possible by investment and is driven by a desire to maximise profits. The origins and consequences of economic growth, as well as

the methods used to quantify economic growth rate, have been the subject of a significant number of hypotheses and explanations since the dawn of economics. During the early modern period, the mercantilists' Economic growth could be defined as an increase in the total amount of gold and silver that was controlled by the state. This was done to facilitate an increase in the number of exports of manufactured goods at a reduced price, as well as to reduce the amount of competition from overseas, with the ultimate goal of establishing the United States as the dominant economic power in international trade. According to this idea of development, the way to significantly raise a country's standard of living was to authorise monopolies, such as the Dutch East India Company and the British East India Company[3]. Because of this, an individual have an incentive to abuse a market or resource, secure in the knowledge that he would keep all of the earnings until all other extra-national rivals were pushed out of business. In the past few months, numerous academics have made the observation that the growth of the gross domestic product (GDP) in India had started decelerating even before the crisis hit the world economy toward the end of the year 2008. This observation was made by a number of academics in recent months[4]. Although there have been indications of an economic rebound since the first quarter of the current fiscal year, there is still reason to be concerned that the benefits of previous reforms may have been realised to their full potential, which might lead to a slowdown in growth. Because, in that scenario, the optimism about a rebound to the previous growth path over time may not be justified, and we may need to take a deeper look at the factors that are contributing to that growth? This short paper gives an exploratory examination of the Indian quarterly GDP series at factor cost (prices from 1999-2000), as well as a few of its aggregate components, during the period 1996-97 to 2008-09, which spans the time covered by this analysis.

The idea of economic growth has been revised in order to take into account the developments and expectations of the current day. The Gross Domestic Product (GDP) or Gross National Product (GNP) is not an adequate statistic to identify or assess the economic growth of a nation, regardless of how wealthy the country is. The expansion of the economy has to be factored in with the expansion of resources and environmental considerations. The expansion of the economy should not come at the expense of or lead to the depletion of natural resources; rather, it should go hand in hand with the increase of natural resources and the upkeep of ecological balance within the economy. Neither of these outcomes should be acceptable. The pace of economic expansion need to be measured in terms of the increase of GNP, which should take into account the expansion of natural resource production and the maintenance of ecological equilibrium. The empirical research methodology is being used in this study to investigate the patterns, causes, and consequences of economic expansion in India since 1951.

Indian Econmic development in GDP perspective

India has emerged as the fastest-growing major economy in the world and is likely to be one of the top three economic powers in the world over the next 10-15 years, supported by its robust democracy and strong relationships. India is predicted to be the third-largest consumer economy as its consumption may quadruple to US$ 4 trillion by 2025, due to a change in consumer behaviour and spending pattern, according to a Boston Consulting Group (BCG) analysis. It is predicted to overtake the USA to become the second-largest economy in terms of purchasing power parity (PPP) by 2040, as per a forecast by Price water house Coopers. The long-term growth prospective of the Indian economy remains optimistic owing to its youthful population and related low dependence ratio, robust savings, and investment rates, rising globalisation in India and integration into the global economy. India is the world’s sixth biggest economy in terms of GDP. It has the third biggest buying power in the world. When we speak about the global economy, India is one of its fastest rising participants. Since our liberalisation in 1991, the economy has opened up and given us lots of opportunity to flourish.

Importance and Scope of the study

The old method of measuring economic growth rate is no longer adequate since it ignores the significance of factors like population growth, human capitalization, and environmental protection when calculating growth trends. These factors have gained importance in the modern context since, frequently, greater economic expansion is attained at the expense of environmental degradation and human rights violations. Therefore, it is necessary to redefine the phrase "economic growth" by emphasising environmental conservation and, in turn, the increase of natural capital. This study makes an effort to close the measurement gap.

Statement of the Problem

The idea of economic growth has been modified to fit the needs and developments of the modern world. Gross National Product (GNP) or Gross Domestic Product (GDP) alone are insufficient indicators to describe or gauge the economic development of any nation, rich or poor. The expansion of resources, including environmental factors, must be taken into account as well as economic growth. The expansion of the economy shouldn't come at the expense of or through the depletion of natural resources, but rather should go hand in hand with their expansion and the preservation of the ecological balance. The measure of economic growth rate must be GNP growth, taking into account the increase of natural resources as well as ecological balance.

The aim of the paper

This is an attempt to measure the growth of Indian GDP which is one of the important benchmark for measuring the level of economic growth of the country. Based on the data relating to the Indian GDP, an empirical analysis has been made. This study is based on the secondary data collected from sources viz. (i)Planning Commission of India Report (2001); Indian Planning Experience (ii) Ministry of Environment and Forests Reports (iii) RBI: Hand Book of Statistics of Indian Economy.

The Indian GDP

The Indian Gross Domestic Products and the components of the GDP from 2014-2015 to 2020-21 (base years 2011-2012) have been collected from the web site of the National Statistical Office (NSO).This data gives more information about the Indian economy and the role of the components of GDP of the study period (2014-2015 to 2020-2021).The following tables show the GDP of the country in both constant prices and current prices. The GDP and its components, private final consumption expenditures, Government final consumption expenditures, gross fixed capital formation, changes in stocks, valuables, exports of goods and services, import of goods and services, discrepancies are given for the study period.

Table 1GDP (Base Year: 2011-12) Constant Prices (Amount in ₹ Crore)

Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Private Final Consumption Expenditure	59,12,657	63,81,419	69,00,236	73,30,728	78,84,423	83,21,701	75,60,985
Government Final Consumption Expenditure	10,54,151	11,32,802	12,01,598	13,44,843	14,29,055	15,41,742	15,86,745
Gross Fixed Capital Formation	32,78,096	34,92,183	37,87,568	40,83,079	44,86,205	47,30,416	42,20,508
Changes in Stocks	2,74,751	2,39,557	1,22,639	2,06,436	2,62,639	1,58,385	1,54,276
Valuables	1,87,957	1,85,986	1,51,479	2,12,307	1,91,704	1,64,527	1,67,784
Exports of Goods and Services	25,12,145	23,70,282	24,88,423	26,02,012	29,23,273	28,26,639	26,94,386
Import of Goods and Services	26,67,595	25,11,540	26,21,593	30,78,274	33,43,220	33,17,165	28,65,827

Discrepancies	-24,487	78,804	2,77,844	4,43,451	1,69,236	1,43,023	-6,117
Gross Domestic Product	1,05,27,674	1,13,69,493	1,23,08,193	1,31,44,582	1,40,03,316	1,45,69,268	1,35,12,740

Indian GDP during the study period has witnessed a study growth except the financial year 2020-2021. It was Rs. 1, 05, 27,674 crores in 2014-2015 and raised to Rs. 1, 45, 69,268crores in 2019-2020. But it ended with Rs. 1, 35, 12,740 crores in 2020-2021. Among the components of the GDP, private final consumption expenditure is contributing much in GDP. It was Rs. 59, 12,657 crores in 2014-2015 and Rs. 83, 21,701 crores in 2019-2020. The consumption in constant price has been tremendously reduced in 2020-2021 to Rs. 75, 60,985 crores due to Corona pandemic. The other components of government final consumption expenditure, gross fixed capital formation and others are also given. The export and import of the Goods and services in the GDP also share major portion in the Indian GDP. The following table shows the GDP in current prices (base year 2011-2012).

Table 2 GDP (Base Year: 2011-12) Current Prices (Amount in ₹ Crore)

Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Private Final Consumption Expenditure	72,47,340	81,26,408	91,26,533	1,00,36,153	1,12,22,072	1,23,09,019	1,15,68,231
Government Final Consumption Expenditure	13,01,762	14,36,171	15,86,658	18,40,119	20,37,627	22,85,016	24,67,415
Gross Fixed Capital Formation	37,50,392	39,57,092	43,38,671	48,15,601	55,12,930	58,51,313	53,49,875
Changes in Stocks	3,12,698	2,62,477	1,38,083	2,37,581	3,18,013	1,94,441	1,95,411
Valuables	2,09,407	2,03,506	1,67,326	2,41,685	2,26,095	1,94,700	2,35,782
Exports of Goods and Services	28,63,636	27,28,647	29,48,772	32,11,521	37,66,294	37,50,567	36,85,170
Import of Goods and Services	32,35,962	30,44,923	32,20,591	37,51,389	44,68,166	42,65,040	37,92,712
Discrepancies	18,687	1,02,495	3,06,216	4,58,772	2,72,092	30,997	36,499
Gross Domestic Product	1,24,67,959	1,37,71,874	1,53,91,669	1,70,90,042	1,88,86,957	2,03,51,013	1,97,45,670
Notes: 1. Data for 2017-18 are Third Revised Estimates, for 2018-19 are Second Revised Estimates and for 2019-20 are First Revised Estimates.							
2. Data for 2020-21 are Provisional Estimates.							

Also see Notes on Tables.
Source: National Statistical Office (NSO).

The Table 2 shows the GDP in current prices (base year 2011-2012) and their components. Based on the current prices, the GDP has been calculated as huge increase during the study period. It was Rs. 1, 24, 67,959 crores in the years 2014-2015 and then increased to Rs. 2, 03, 51,013 crores in 2019-2020. Then, it was reduced to Rs. 1, 97, 45,670 crores in the year 2020-2021. The private final consumption expenditure is contributing more in the Indian GDPwhich is Rs. 72, 47,340 crores in 2014-2015 and ended up with Rs. 1, 15, 68,231 crores in 2020-2021. Import and export of goods and services are other components majorly sharing in the Indian GDP.

The statistical have been further analysed with the trend analysis using annual growth rate in the following tables.

Trend and growth

The annual growth of the GDP indicates the development in the economy during the particular financial year. The GDP and their components are analysed in constant prices and current prices as below.

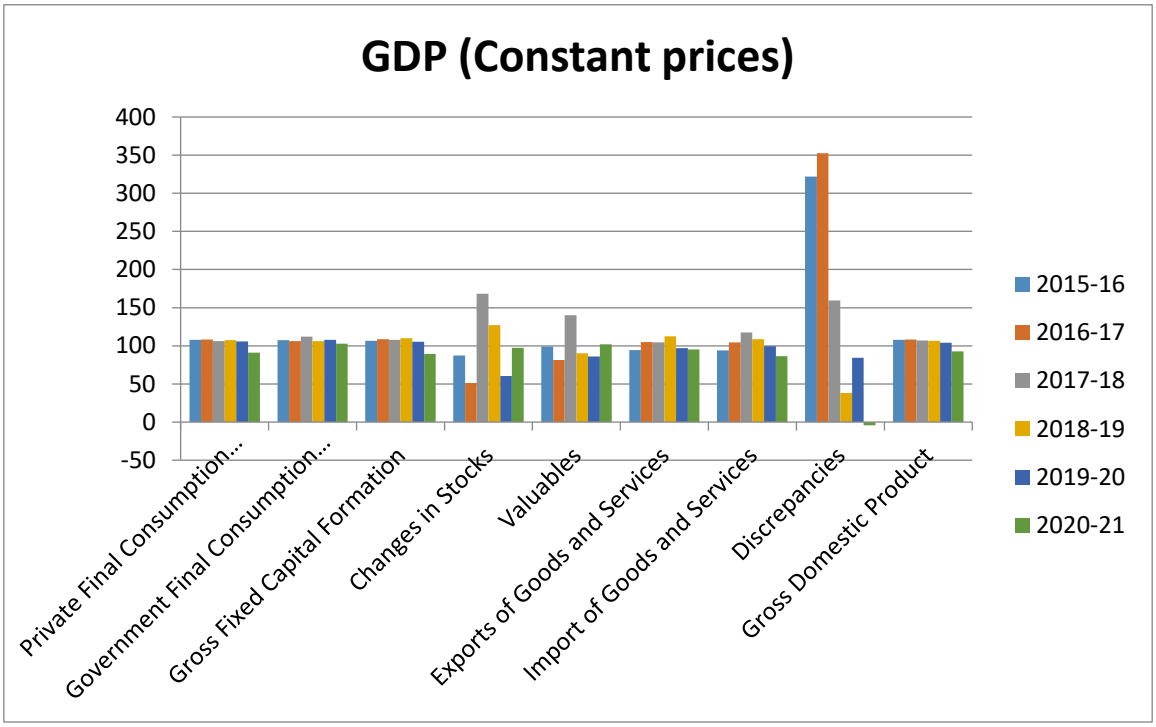
Table 3 Trend of GDP (Base Year: 2011-12) Constant Prices (Amount in ₹ Crore)

Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Private Final Consumption Expenditure	59,12,657	63,81,419	69,00,236	73,30,728	78,84,423	83,21,701	75,60,985
		(7.93)	(8.13)	(6.24)	(7.55)	(5.55)	(-9.14)
Government Final Consumption Expenditure	10,54,151	11,32,802	12,01,598	13,44,843	14,29,055	15,41,742	15,86,745
		(7.46)	(6.07)	(1.92)	(6.26)	(7.89)	(2.92)
Gross Fixed Capital Formation	32,78,096	34,92,183	37,87,568	40,83,079	44,86,205	47,30,416	42,20,508
		(6.53)	(8.46)	(7.80)	(9.87)	(5.44)	(-10.78)
Changes in Stocks	2,74,751	2,39,557	1,22,639	2,06,436	2,62,639	1,58,385	1,54,276
		(-12.81)	(-48.81)	(8.33)	(7.23)	(-39.79)	(-2.59)
Valuables	1,87,957	1,85,986	1,51,479	2,12,307	1,91,704	1,64,527	1,67,784
		(-1.05)	(-18.55)	(40.16)	(-9.70)	(-14.18)	(1.98)
Exports of Goods and Services	25,12,145	23,70,282	24,88,423	26,02,012	29,23,273	28,26,639	26,94,386
		(-5.65)	(4.98)	(4.56)	(12.35)	(-3.31)	(-4.68)
Import of Goods and Services	26,67,595	25,11,540	26,21,593	30,78,274	33,43,220	33,17,165	28,65,827
		(-5.85)	(4.38)	(17.42)	(8.61)	(-0.78)	(-13.61)
Discrepancies	-24,487	78,804	2,77,844	4,43,451	1,69,236	1,43,023	-6,117
		(221.82)	(252.58)	(59.60)	(-61.84)	(-15.49)	(-104.28)
Gross Domestic Product	1,05,27,674	11369493.00	1,23,08,193	1,31,44,582	1,40,03,316	1,45,69,268	1,35,12,740
		(8.00)	(8.26)	(6.80)	(6.53)	(4.04)	(-7.25)

(Figures in the parentheses denote Annual Growth Rate)

The annual growth of the GDP is increased by 8% then it reduced to 7% and 6%. In the financial year 2019-2020, it was 4% and then in 2020-2021, it has negative growth 7% due to pandemic. Pattern of private final consumption, which is majorly affecting the Indian GDP, has 7% and 8% annual growth in the first half of the study period. But later, the growth is reduced and in the year 2020-2021, it has negative annual growth by 10%. Except the government final consumption and valuables, all the components of GDP are reduced in the year 2020-2021. Changes in stock has more volatility during the study period. Discrepancies had high growth during the first period as it has negative value in the first year. Again in the second part of the period, the growth of the discrepancies is reduced to greater level. The trend is explained in the following chart.

Chart 1 AGR of the GDP (Constant prices) (in percentage)



The chart shows that almost all the components of the GDP are less in the last financial year 2020-2021. Discrepancies have more volatility in its growth. The overall GDP is almost constant except the last year. The growth of the GDP I current prices is given below in Table 4.

Table 4 Trend of GDP (Base Year: 2011-12) Current Prices (Amount in ₹ Crore)

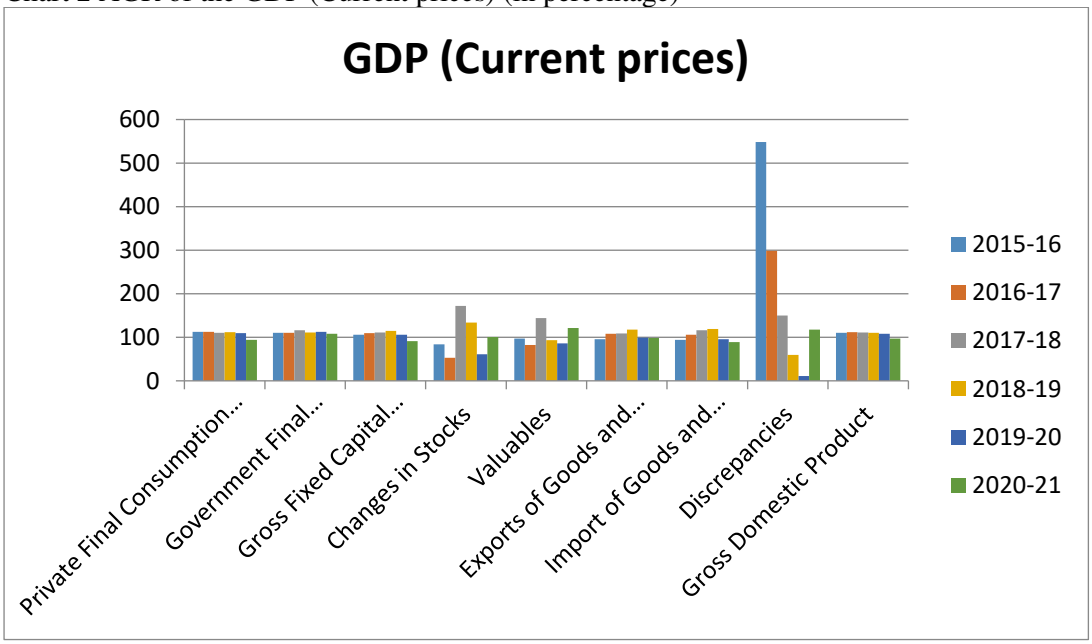
Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Private Final Consumption Expenditure	72,47,340	81,26,408	91,26,533	1,00,36,153	1,12,22,072	1,23,09,019	1,15,68,231
		(12.13)	(12.31)	(9.97)	(11.82)	(9.69)	(-6.02)
Government Final Consumption Expenditure	13,01,762	14,36,171	15,86,658	18,40,119	20,37,627	22,85,016	24,67,415
		(10.33)	(10.48)	(15.97)	(10.73)	(12.14)	(07.98)
	37,50,392	39,57,092	43,38,671	48,15,601	55,12,930	58,51,313	53,49,875

Gross Fixed Capital Formation		(5.51)	(9.64)	(10.99)	(14.48)	(6.14)	(-8.57)
Changes in Stocks	3,12,698	2,62,477	1,38,083	2,37,581	3,18,013	1,94,441	1,95,411
		(-6.06)	(-47.39)	(72.06)	(33.85)	(-38.88)	(0.50)
Valuables	2,09,407	2,03,506	1,67,326	2,41,685	2,26,095	1,94,700	2,35,782
		(-2.82)	(-7.78)	(44.44)	(-6.45)	(-13.89)	(21.10)
Exports of Goods and Services	28,63,636	27,28,647	29,48,772	32,11,521	37,66,294	37,50,567	36,85,170
		(-4.71)	(8.07)	(8.91)	(17.27)	(-0.42)	(-1.74)
Import of Goods and Services	32,35,962	30,44,923	32,20,591	37,51,389	44,68,166	42,65,040	37,92,712
		(-5.90)	(5.77)	(16.48)	(19.11)	(-4.55)	(-11.07)
Discrepancies	18,687	1,02,495	3,06,216	4,58,772	2,72,092	30,997	36,499
		(448.48)	(198.76)	(49.82)	(-40.69)	(-88.61)	(17.75)
Gross Domestic Product	1,24,67,959	1,37,71,874	1,53,91,669	1,70,90,042	1,88,86,957	2,03,51,013	1,97,45,670
		(10.46)	(11.76)	(11.03)	(10.51)	(7.75)	(-2.97)

(Figures in the parentheses denote Annual Growth Rate)

According to the current prices, the GDP growth is calculated at 10% to 11% in the first half and it has been reduced to 7.75% in 2019-2020 and -2.97% in the last year. The private final consumption expenditure has 10% and more rate growth but it was -6% in the year 2020-2021. Government final consumption expenditure is stable and it has 8% growth in the last year. Valuables (21.10%) and discrepancies (17.75%) are other components have positive growth during the pandemic. The result is displayed in the following chart 2.

Chart 2 AGR of the GDP (Current prices) (in percentage)



The chart depicts that the growth rate is almost stable during the study period except the changes in the value of staocks, valuables and discrepancies.

Contribution

The contribution of each components in the total GDP is calculated to understand their role

in the national productivity. The Table 5 and 6 give the result of the common size statements for the study period.

Table 5 Common size statements of GDP (Base Year : 2011-12) Constant Prices (Amount in ₹ Crore)

Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Private Final Consumption Expenditure	59,12,657 (56.16)	63,81,419 (56.13)	69,00,236 (56.06)	73,30,728 (55.77)	78,84,423 (56.30)	83,21,701 (57.12)	75,60,985 (55.95)
Government Final Consumption Expenditure	10,54,151 (10.01)	11,32,802 (9.96)	12,01,598 (9.76)	13,44,843 (10.23)	14,29,055 (10.21)	15,41,742 (10.58)	15,86,745 (11.74)
Gross Fixed Capital Formation	32,78,096 (31.14)	34,92,183 (30.72)	37,87,568 (30.77)	40,83,079 (31.06)	44,86,205 (32.04)	47,30,416 (32.47)	42,20,508 (31.23)
Changes in Stocks	2,74,751 (2.61)	2,39,557 (2.11)	1,22,639 (1.00)	2,06,436 (1.57)	2,62,639 (1.88)	1,58,385 (1.09)	1,54,276 (1.14)
Valuables	1,87,957 (1.79)	1,85,986 (1.64)	1,51,479 (1.23)	2,12,307 (1.62)	1,91,704 (1.37)	1,64,527 (1.13)	1,67,784 (1.24)
Exports of Goods and Services	25,12,145 (23.86)	23,70,282 (20.85)	24,88,423 (20.22)	26,02,012 (19.80)	29,23,273 (20.88)	28,26,639 (19.40)	26,94,386 (19.94)
Import of Goods and Services	26,67,595 (25.34)	25,11,540 (22.09)	26,21,593 (21.30)	30,78,274 (23.42)	33,43,220 (23.87)	33,17,165 (22.77)	28,65,827 (21.21)
Discrepancies	-24,487 (-0.23)	78,804 (0.69)	2,77,844 (2.26)	4,43,451 (3.37)	1,69,236 (1.21)	1,43,023 (0.98)	-6,117 (-0.05)
Gross Domestic Product	1,05,27,674 (100.00)	1,13,69,493 (100.00)	1,23,08,193 (100.00)	1,31,44,582 (100.00)	1,40,03,316 (100.00)	1,45,69,268 (100.00)	1,35,12,740 (100.00)

(Figures in the parentheses are percentages)

The contribution of the private final consumption expenditure is more than 50% in every year during the study period. The role of Gross fixed capital formation is around 305 and above throughout the study period. The share of the export and import in the GDP is more than 20% in GDP. The Export gives positive and import makes negative contribution to the total GDP. Government consumption is around 10% through out the period. Other components are having very less share (less than 10% in GDP).

The GDP based on the current prices shows the result in the following table.

Table 6 Common size statements of GDP (Base Year : 2011-12) Current Prices (Amount in ₹ Crore)

Items/Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21

Private Final Consumption Expenditure	72,47,340 (58.13)	81,26,408 (59.01)	91,26,533 (59.30)	1,00,36,153 (58.73)	1,12,22,072 (59.42)	1,23,09,019 (60.48)	1,15,68,231 (58.59)
Government Final Consumption Expenditure	13,01,762 (10.44)	14,36,171 (10.43)	15,86,658 (10.31)	18,40,119 (10.77)	20,37,627 (10.79)	22,85,016 (11.23)	24,67,415 (12.50)
Gross Fixed Capital Formation	37,50,392 (30.08)	39,57,092 (28.73)	43,38,671 (28.19)	48,15,601 (28.18)	55,12,930 (29.19)	58,51,313 (28.75)	53,49,875 (27.09)
Changes in Stocks	3,12,698 (2.51)	2,62,477 (1.91)	1,38,083 (0.90)	2,37,581 (1.39)	3,18,013 (1.68)	1,94,441 (0.96)	1,95,411 (0.99)
Valuables	2,09,407 (1.68)	2,03,506 (1.48)	1,67,326 (1.09)	2,41,685 (1.41)	2,26,095 (1.20)	1,94,700 (0.96)	2,35,782 (1.19)
Exports of Goods and Services	28,63,636 (22.97)	27,28,647 (19.81)	29,48,772 (19.16)	32,11,521 (18.79)	37,66,294 (19.94)	37,50,567 (18.43)	36,85,170 (18.66)
Import of Goods and Services	32,35,962 (25.95)	30,44,923 (22.11)	32,20,591 (20.92)	37,51,389 (21.95)	44,68,166 (23.66)	42,65,040 (20.96)	37,92,712 (19.21)
Discrepancies	18,687 (0.15)	1,02,495 (0.74)	3,06,216 (1.99)	4,58,772 (2.68)	2,72,092 (1.44)	30,997 (0.15)	36,499 (0.18)
Gross Domestic Product	1,24,67,959 (100.00)	1,37,71,874 (100.00)	1,53,91,669 (100.00)	1,70,90,042 (100.00)	1,88,86,957 (100.00)	2,03,51,013 (100.00)	1,97,45,670 (100.00)

(Figures in the parentheses are percentages)

The GDP on the current prices have also been majorly contributed by the private final consumption expenditure (58% to 60%). Gross fixed capital formation is contributing between 27% and 30%. The Export and import contribute 23% and 26% in the beginning but in the last year, they were reduced to 19% due to the pandemic. Government final consumption expenditure is increased from 10% to 12% during the study period. There is no big contribution and share from other components of the GDP. Changes in stock is also considerable reduced from 2.51% to 1% in its share.

Conclusion

The paper has identified and measured the growth of the Indian GDP. Globally, Indian economy is an emerging and fastest growing economy. Compared to the international economies, the Indian economy is a trillion economy and focusing on achieving 5 trillion economy in 5 years. Among the largest economy, the India and China are having more than 8% of the growth in GDP. This study shows a sharp decline in the growth after 2020 due to Corona pandemic. This is not only the Indian economy, it has been witnessed as global economical and healthcare crisis. The components of the GRP shows that major portion of the Indian GDP is contributed by the Private final consumption and export import of the country. When the private consumption is maintained, the Indian GDP will be having strong growth in future. The Government final consumption has supported the Indian GDP during the pandemic. It shows the Indian strong economic growth and support.

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SOCIAL REALISM IN JOHN STEINBECK'S SELECT NOVELS

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ABSTRACT

This paper is a study of the important theme Social Realism found in John Steinbeck's novels . Social Realism was a movement of the 1930's in America where writers, painters and other literary figures made an attempt to present the true picture of the society. Through such works, the tactics of rich land-owners and the capitalists were investigated and explained, while the farmers, migrants and poor people were looked at with sympathy. John Steinbeck's majority novels had the theme of social realism as well.*The Grapes of Wrath* has been the best example for this theme. The novel won the Pulitzer Award in 1940 for its realistic depiction of the suffering farmers. The novel mimics life and provides social commentary. Steinbeck's social realism takes concern for the poor. This paper also tries to explain that the novel was not written with a purpose of political action, but it is a sympathetic description earnestly requesting us for greater social commitment and responsibility to formulate policies of equality and unbiased justice .

Keywords: Realism,Capitalism, Justice and Socialism.

Realism was an artistic movement which emerged in France in the mid 19th century as a reaction against Romanticism. In favour of depictions of 'real' life, the Realist painters and writers used common labourers and ordinary surroundings engaged in real activities as subjects for their works. The chief exponents of Realism were Gustave Courbert, Jean Francois Millet, Honore Daumier and Jean Baptiste-Camille Carot. William Dean Howells says, "Realism is nothing more and nothing less than the truthful treatment of material".

Broadly defined as ‘the faithful representation of reality’ or ‘verisimilitude’, realism is a literary technique practiced by many schools of writing. Although strictly speaking, realism is a technique, it also denotes a particular kind of subject matter, especially the representation of middle class life. In arts and literature, realism may be defined as an attempt to represent life truthfully and also avoiding all such literary techniques which make life seem implausible, exotic, and extraordinary. The term originated in the nineteenth century, and was used to describe the works of Gustave Courbet and a group of painters who rejected idealization and focused on representing everyday real life. Realism was a reaction against Romanticism - a movement which had influenced European literature and arts since the late eighteenth century. It revolted against the ‘exotic’ subject matter and exaggerated emotionalism, and drama of the Romantic movement. According to William Harmon and Hugh Holman: ‘where romanticists transcend the immediate to find the ideal, and naturalists plumb the actual or superficial to find the scientific laws that control its actions, realists center their attention to a remarkable degree on the immediate, the here and now,the specific action, and the verifiable consequence. (366)

The term ‘Realism’ however, has been used in different contexts signifying different meanings and concepts. There are the concepts of philosophical realism, moral realism, magic realism, scientific realism, depressive realism, legal realism, poetic realism and many more. All these ‘realisms’ share a common interest in presenting some aspect of life as it is lived. Majority of critics suggests that the term should only be used with a prefix attached. Samantha Lay asserts that the essential reason for using a prefix before the word ‘realism’ is that – an important feature of all realisms is how they are produced at specific historical points. Lay points out as follows "The addition of a prefix, such as social-, neo-, documentary-, poetic-, specifies the ‘what’ and, crucially, ‘when’ of that movement or moment. What is regarded as ‘real’, by whom, and how it is represented is unstable, dynamic, and ever-changing, precisely because realism is irrevocably tied to the specifics of time and place, or ‘moment’". (6)

Thus, American Realism was an early twentieth century idea, in all fields of arts, that showed reflections of the time period through different types of work. Instead of looking back to antiquities for guidance, artists, writers, and musicians were concerned with recording the experiences of the labour class, as well as the true reality of the early twentieth century in America. Social Realism was a subgenre of this movement.

Social Realism was an artistic movement in the U.S, during the 1930s, that expressed itself in various fields of visual and other realistic arts. It depicted the social, racial, and economic injustices through the pictures of life’s struggles. The movement also involved paintings where the scenes usually conveyed a message of political and social protest with a tint of satire in them. Examples of social novels are Harriet Beecher Stowe’s Uncle Tom’s Cabin (1852), Upton Sinclair’s The Jungle (1906), John Steinbeck’s The Grapes Of Wrath

(1939), and Nadine Gordimer's Burger's Daughter (1979). A Marxist version of the social novel, representing the hardships suffered by the oppressed and downtrodden working class, and usually written with a purpose of inciting the reader to radical political action, is called the 'Proletarian novel'. A Proletarian novel comes under the theory of Socialist Realism. Thus social realism shouldn't be confused with socialist realism.The proletarian novel is a subgenre of the novel, written by workers mainly for other workers. It overlaps and sometimes is synonymous with the working-class novel, socialist novel, social problem novel. It is also called as problem novel or sociological novel or social novel.a propaganda or thesis novel, and socialist realism novel.

There had been a number of writers who, at times, had been classified under this category of novel-writing, starting from Charles Dickens, Jane Austen, George Eliot, Anthony Trollope, William Dean Howells, and Henry James in England and America; Stendhal, George Sand, Balzac and Flaubert in France; and Turgenev and Tolstoy in Russia. But none of them made this genre their penchant. It was John Steinbeck from America who, during his career, identified this genre as his niche.

John Steinbeck was a versatile writer. He has been described as a social protest writer, a realist, a journalist, and a playwright. There are many strong themes running through his works. The most notable are the strength of the family, the effect of the environment on man, the dehumanizing effects of capitalism on the labour class, and social protests. He also experimented with many different writing styles and points of views. Steinbeck worked within the literary tradition of realism and expressed undistorted pictures of life's struggles as well as the inequalities and exploitation that characterised American Industrialization. His work contributed to some extent, to the growing progressive political movements which aimed at eradicating social problems including the oppression of women, prejudice against immigrants, discrimination against racial minorities, unsafe housing conditions and exploitative labour practices.

Almost all of Steinbeck's novels propagate the idea of social realism, but the best epitome, as considered by a majority of critics, is his Pulitzer award winning novel The Grapes Of Wrath (1939). This novel was published in the middle of the industrial revolution. In this period, poor farmers were marginalized and dispossessed of their lands. This fact motivates him to use a direct and truthful language in order to condemn those wrong-doings done to the poor helpless farmers by rich land-owners.

The Grapes Of Wrath starts with a depiction of Dust Bowl, the event which causes all that happens in the rest of the book. It then introduces Tom Joad, the main protagonist of the novel. The story revolves around Tom Joad and his family's traumatic experience. The novel begins at a time when Tom had recently been paroled from prison, where

he was serving a term for the charge of a murder. While returning to his family's home, he is joined by the retired preacher, Jim Casy. When they reach Tom's home, they are surprised to find the house abandoned and in a state of collapse. They, eventually, come to know that the family has shifted to Tom's uncle's home, and they are planning to leave for California. It turns out that the family suffered huge losses due to the Dust Bowl and drought. As a result, they could not pay back the money that they had borrowed from the Bank, and the Bank foreclosed their farm which was the chief source of income for the Joad family.

They had decided to shift to California because they were lured by the advertisements, in the newspapers, of ample work and reasonable salaries for labourers. However, on arriving at the 'promised land' they were completely shattered. They realised that these advertisements were actually the plots of rich land-owners and capitalists for attracting huge amount of labouring-hands than were actually required. This way they could easily get cheap labour and exploit these 'needy ones'. Gradually the family's condition gets deteriorated and one by one the family members start leaving the group. Though Rosasharn, Tom's sister was pregnant and her husband abandoned her. On the other hand, Jim Casy gets arrested by police and is separated from the family. For some time, the remaining members of the Joad family live at a government camp, but they are forced to leave the camp due to lack of any work. Finally, when they find the work of picking fruits, they realise that, unknowingly, they were involved in breaking a strike that was organised by Jim Casy.

Eventually the strike turns violent and unfortunately Jim Casy gets killed. In an outrage, Tom again kills someone to avenge Casy's death. As a result, the family had to make an emergency escape in order to hide their fugitive son. The zenith of their sufferings is reached when Rosasharn gives birth to a stillborn baby. The novel ends with Rosasharn breast-feeding an old and starving man who is so emaciated that milk is the only thing that he could digest. The novel is crudely realistic. Through the journey of the Joads, we come to see the labyrinths of capitalism characterised by its uncontrolled poverty, and its inhuman greed. The men from the Bank or the Companies that give loans, sit in their closed A.C cars and try to explain to the helpless farmers that a tractor does more work than a whole family of men, women and children put together; that their lands are to be mechanically ploughed under; that their hand-built houses are to be razed to the ground. The novel becomes a portrait of wounded characters: the despairing Muley Graves; the strange Noah and the obsessed Uncle John, a one eyed man self pitying his state; the typical Mae serving in a Highway 66 cafe; and the hell-bent vigilantes and deputies.

Social Realism becomes the lens through which Steinbeck's novel views the inequalities and sufferings in the world. He had a reporter's eye too. In telling his stories he wanted to let his audience know how things really were. Like Dickens, he aimed to tell society's hidden ugly truths. The Grapes of Wrath depicted a reality that no one wanted to

face, in stunning detail:”The works of the roots of the vines, of the trees, must be destroyed to keep up the price, and this is the saddest, bitterest thing of all. Carloads of orange dumped on the ground. The people came for miles to take the fruit but this could not be.... And men with hoses squirt kerosene on the oranges...a million people hungry, needing the fruit-and kerosene sprayed over the golden mountains.And the smell of rot fills the country. (Steinbeck 364)

The novel is so honest and powerful in depicting the conditions of the farmers that it was banned in two states, Oklahoma and California.In the novel, Steinbeck implemented a contrapuntal structure, in which the chapters of exposition and background relevant to the migrants as a group (Chapters 1, 3, 5, 7, 9, 11, 12, 14, 15, 17, 19, 21, 23, 25, 27, 29)are arranged alternately with the long narrative chapters of the Joad family’s dramatic journey to California (Chapters 2, 4, 6, 8, 10, 13, 16, 18, 20, 22, 24, 26, 28, 30). Just as in Moby Dick Melville created intensity and prolonged suspense by alternating between the temporal chapters of Ahab’s driven quest for the white whale and Ishmael’s numerous chapters on cetology, so Steinbeck structured his novel by juxtaposition. In fact (“pace changers”, Steinbeck called his intercalary chapters as "pace changers" and they were intentionally designed to “hit the reader below the belt.” .Steinbeck revealed it to Columbia undergraduate Herbert Sturz in 1953. Some of the intercalary chapters do an amazing job of painting the harsh reality of life during the Depression. In chapter 19, for instance, Steinbeck figures out the pathetic situation of the migrants with a pictorial quality:'They streamed over the mountains, hungry and restless as ants, scurrying to find work to do- to lift, to push, to pull, to pick, to cut- anything, any burden to bear, for food." (Steinbeck 244)

Despite Steinbeck’s doubts regarding the response towards the novel, The Grapes of Wrath turned out to be not only a ‘fine’ book, but the greatest of his seventeen novels. With its release in April, 1939, the novel swept the country, bringing on a storm of reviews. In his writing on Steinbeck’s career, Peter Lisca recalled the impact of the book’s publication that the novel was publicly banned and burned by citizens, but above all, it was read. However the response towards the novel was not completely positive. There arose a situation of ‘for' and ‘against’ for the novel. The novel had been attacked by academic scholars as sentimental, unconvincing, and inartistic; while time and again banned by school boards and libraries for its rebellious theme and frank language. It was also denounced by right-wing ministers, corporate farmers, and politicians as communist, immoral, degrading, warped, and untruthful. Oklahoma Congressman Lyle Boren, one of the staunch opponents of the novel, called it “a lie, a black, infernal creation of twisted, distorted mind” (qtd. in Steinbeck xxxvii). A Jesuit priest, Arthur D. Spearman, called it “an embodiment of the Marxist Soviet propaganda” (qtd. in Steinbeck xxxvii).But calling the novel a “Marxist Soviet propaganda” was not fair, because Steinbeck himself reacted to Stalinist communism the same way he did to social snobbery – with vigour. His opposition to the Soviet system and his affection for the Russian

people are both evident in A Russian Journal, the result of his collaboration with the photographer Robert Capa following their tour of the USSR in 1947.

While analysing the novel from a socially realistic point of view one major drawback that comes to the forefront is the observation put forward by Carey McWilliams. According to him, Steinbeck, while portraying the realistic image of contemporary time, ignored the problems of non white migrant workers – Filipinos, Chinese, Japanese, and Mexicans – who made up a significant percentage of California's agricultural labour force. But beyond all these assets and liabilities the impact of the novel may be summed up in a saying that goes as: 'you may love it; you may hate it; but you can't ignore it'.

It may be concluded that Steinbeck records the entirety of the time and place that took place in *The Grapes of Wrath,* emphasising the social realism of the entire gamut of human nature. Readers meet every single person whether they are the ones who take advantage of those who have nothing (car salesmen); whether those who take advantage of the people's desperation (California land-owners and farmers); whether the ones having nothing but offering everything (the many farmers); whether people living on hope; or whether they are the ones who do whatever they must do to survive. The Grapes of Wrath shows the entirety of human nature and is the true essence of social realism.

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Carnivalesque and Subvertion of Grotesque Power Structure through Resistance: A Bakhtinian Dissection of Khaled Hosseini's *The Kite Runner*

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Abstract

The paper attempts to have a Bakhtinian reading of the novel, The Kite Runnerby Afghan writer, Khaled Hosseini. The author's attitude of resistance is, here, seen through the subvertion of power structures. The paper also endeavours to have Bakhtinian perception of the novel with the application of the concept, Carnivalesqueand Grotesque. Based on the theory of Carnivalesque, the reserarchers attempt to deliniate the work with the notion of subversion. The author's resistance is elabarated through his application of Carnivelesque elements. Thus, subversion of the power is scrutinized. Moreover, the researchers tend to identify postcolonial concepts such as, Ambivalence, Mimicry and Hibridity in the novel. The researchers, furthermore, negotiate that in which manner the charcters are suppressed by the colonizers and discriminated as 'other'. The paper also deals with the colonial issue between the natives and the colonizer. Various conflicts, such as, Pashtun and Hazara conflict, Amir's cultural identity crisis and Rahim Khan's colonial attitude, are focused.

Keywords: *carnevelesque, subversion, resistance, grotesque, and power.*

Every author has an ideology which he tries to promote through his work. The context influences the authors and shapes their ideology. Khaled Hosseini is not an exception. Being an Afghan-American writer, Hosseini reveals his 'otherness', ambelivence and his search for identity in all his three novels. *The Kite Runner* deals with issue of colonialism in three grounds. Primarily, the novel deals with the issue between, once colonized Pasthuns and now Colonized Hazaras. Secondly, The internal colonization of Russian Army and Taliban are focused. Thirdly, The main character, Amir's migration to America also provides a postcolonial discourse. Every postcolonial literature has a kind of resistance. The resistance, here, is seen with the lens of Bakhtin's theory of *Carnivalesque* which provides a subvertion of Power structure, against superpowers such as, Pasthuns, Soviet Army and American Culture. The subversion of power is seen as resistance. The author's ideology is internalized on the reader through the words.

Racism is evident from the beginning of the novel, which provides a way to analyse the novel from a postcolonial perspective. The first victims are Hazaras, a tribe from mangolia who are residing in Kabul. Pasthuns consider themselves higher than the Hazara, and as a ruler community, they discriminate the poor Hazara. Hazara people are not given respect even by the Pasthun Children. Hazara are seen as 'Others' and obviously becomes *subaltern* in the hands of Pasthuns. The binary oposition is evident even among the children of Kabul. In the beginning of the novel, Hassan, a Hazara is discriminated by Pasthun children, especially, Assef , because of his race. The racial discrimination is evendent through Assef's words who says,

> Afghanistan is the land of Pashtuns. It always has been, always will be. We are the trueAfghans, the pure Afghans, not this Flat-Nose here. His

> peoplepollute our homeland, our watan. They dirty our blood." He madea sweeping, grandiose gesture with his hands. Afghanistan forPashtuns, I say. That's my vision. (Hosseini 38).

Moreover, by describing the Hazaras as "mice-eating, flat-nosed, load-carrying donkeys."(9), Pasthuns defines themselves as civilized and Hazaras as uncivilized. Another instance which exemplifies the colonial struggle is, Pasthun soldires' discrimiation of Hassan. Hassan is mocked by the Pasthun Soldires who use ill mannered words. This reveals Pasthun's colonial attitude. Not only the children are supressed, even Ali an old servent also is supressed by the children of Pasthun Community. The history book which Amir reads also states that the Hazara were oppressed and killed by Pasthuns. The author elucidates his ideology through the disguise of the history book which says,

> Hazarashad tried to rise against the Pashtuns in the nineteenth century,but the Pashtuns had "quelled them with unspeakable violence."The book said that my people had killed the Hazaras, driventhem from their lands, burned their homes, and sold theirwomen. The book said part of the reason Pashtuns had oppressedthe Hazaras was that Pashtuns were Sunni Muslims, while Hazaras were Shi'a (9).

Thus, The conflict between the colonizer and colonized starts even from children of Kabul. The novel is an attempt of the author to represent the reality through fictional framework. Khaled Hosseini, though a Pasthun, as a author explines the plight of Hazaras with a postcolonial sense. In this way, those who are in power try to manipulate the powerless.

Another instance which reveals the colonial struggle is, Amir's attitude towards Hassan. Amir discriminates Hassan and tries to send him out by saying that Hassan has stolen his watch. As a coloniser, the house belongs to Amir and he sends the native Hassan out of the house. Therefore, again Pasthuns consider themselves as 'civilized' and Hazaras as Barbaric. Another Supression of native can be found when the Russian Army molestes native people and controls them. A Russian soldire, as a colonizer compels the women in the truck to have 'thirty minutes' with him. Threatening of her husband with gun point can be taken as a perfect example of what Louis Althusser calls, Repressive State Apparatus. Thus, the native are targetted and marginalized by the colonizers. Therefore, The power structure is always above the subaltern.

The second part of the novel shows the resistance of native towards the colonizer. The resistance can be analogised with Bakhtin concept of *Carnivalesque*, which appears in his book, *Rabelais and His World*(1965). Ian Bachanan defines Carnivalesque as, "a term to characterize the writing that depicts the de-stabilization or reversal of power structure, albeit temporarily, as happens in traditional forms of Carnival" (76). As Bachanan says, it subverts the power structure through carnival mode. The style of writing which subverts is called *Carnivalesque*. *The Kite Runner* also has many instances of Carnivalesque in it. Chris Barker also defines Carnivalesque in the following manner:

> The carnivalesque involves a temporary reversal of the order of power enacted through the rituals, games, mockeries and profanities in which the polite is overthrown by the vulgar and the king up-ended by the fool. The carnival introduces a topsy-turvy world of reversals of power and authority in tandem with the pleasures of excessive eating, drinking and sexual activity that offend the borders of polite decorum.The contemporary use of the term carnivalesque is a metaphorical one that connotes a form of resistance to power and authority from within popular culture. (34)

As Barker points out carnival space reverses the power structure and make the situation upside down. The activities are seen by Barker as a resistance to Power. Bakhtin expresses his views on carnivalesque thus: "Carnival is not a spectacle seen by the people; they live in it, and every-one participates because its very idea embraces all the people. Whilecarnival lasts, there is no other life outside it. During carnival time life issubject only to its laws, that is, the laws of its own freedom" (Rebelais 7). Thus it is evidant that during carnival there is no outside life and everybody, includiung the elite and mass have to abide by the law of carnival. Julian Wolfrey explainst that, "social hierarchies and power structures oriented around

positions of 'high' and 'low' are temporarily inverted, often through forms of parody" (27). Micheal Payne and Jessica Rae define carnivalesque mode of Writing as "thetopsy-turvy realm of meanings, priorities, social distinctions, religious and secular power structures, etc."(332). This shows the list of things that are made upside down in the carnival. Carnivalesque is also associated with grotesque realism as Andrew Robinson mentions in his essay. Bakhtin, in his book *Problems of Dostoevsky's Poetics* (1984), devises four categories of carnival sense of the world:

i) New mode of interrelationship betweenindividuals
ii) Eccentricity
iii) Carnivalistic mésalliances
iv) Profanation (65).

The interaction between usually separated people is allowed during the time of carnival. The interaction is "freed from the authority of all hierarchical positions – social estate, rank, age, property"(65). Ununsual and strange behaviors are allowed and revealing of human nature is permitted in the carnival space. The third chracteristics of carnivalesque reunites everything that is separated usually; as Bhaktin explains, "All things that were once self-enclosed, disunified, distanced from one another bya noncarnivalistic hierarchical worldview are drawn into carnivalistic contacts and combinations. Carnival brings together, unifies, weds, andcombines the sacred with the profane, the lofty with the low, the great with the insignificant, the wise with the stupid" (66). The fourth characteristics of carnivalesque is mixing the sacred and profane toether: Sacred texts are prodied, blasphemies are allowed, debasing language is allowed and obsenities are permitted. These four categories, according to Bakhtin bring liberation and equality in the society. The Kite Runner also possesses all these qualities of Carnivalesque. Therefore, the text can be considered as a carnivalesque literature. Khaled Hosseini, as an anti-establishmentarian writer, uses all these carnival qualities in his writing to bring a sense of liberation and equality in his fictional world. The text, therefore, serves as a carnival space and lets the characters play their dissent role within the realm of text.

Khaled Hosseini has effectively used the first category in his novel to create a friendship between Amir and Hassan. The two extreams kind of people are united in the novel through the bond of friendship. Servent and Master relationship is blurred and frienship is established between Amir and Hassan; as well as between Baba and Ali. Thus the intereaction between usually-separated people filfills the first quality of being a carnivalesque literature. Not only the people but also several cultures are also mingled. In postcolonial aspect, the mixing of two different culture is called "Hybridity" (Nayar 91). Assef belongs to German and Afghan Race, since his father is a German and Mother is an Afghani. Aamir is both Hassan's Master and half-brother. Usually Pashtun and Hazara would never be allowed to be mingled with each other; but, Baba has illicite relationship with a Hazara Woman, Sanabur and Aamir is fed by Sanabur, a Hazara women when he was child. Tradition and Modernisation is usually not allowed to be mixed. In *The Kite Runner*traditional culture of Afghanstan and American culture are allowed to be mixed with one another.

The second category of Carnivalesque occurs in quite a few places of the text. Amir behaves eccentrically with Hassan after the rape of Hassan. He also reveals his real character in the course of the story. In the beginning of the novel he treats Hassan Well, but after the cruel incident, which he witnessed, his behavior becomes eccentric. He begins to get jealous over Hassan and lets his human nature blame Hassan with the accusition of theft. Bhabha also behaved eccentrically and has illegal relationship with his maid. This reveals his human nature and his real character. Though Baba is respected by many in the society still Baba has the guilt in him. This notion of being holy outward and having dirt inside is called by Bakhtin as *Grotesque Realism*. As J.A.Cuddon points out, "Bakhtin discerns [grotesque] a literary mode which mocks and even threatens social hierarchy" (337). Rowland Knowles explicates Grotesque realism as, "Grotesque realism celebrates the grotesque body occluded by the aesthetics of neoclassical beauty, the body with genitals and orifices, a body of organic processes rather than the self-contained body of proportional beauty. (16). Though looks good from the outside, Sanabur, Amir, and Baba are disgusting inside

of them. The eccentric behavior of Baba which is revealed in American shop also exemplifies the second quality of carnivalesque.

The third category, mixing of two extreams is also evident in the novel. Assef is both a religious scholar and a materialistic man, who would like to have homosexual relationship with Haasan's son. Though being servent, Hassan becomes the owner of Amir's house after they left Kabul. America and Kabul mixes with one another through Amir, who inspite of being a Afghani, feels like he is a stranger in his own land. Baba also contributes to this category. Suraiya, Baba, General, Amir, and all the diasporic figures create a kind of hybridness which can be taken as mixing of high culture and low culture. Taliban with Russian guns, American Jeep, and british sun glasses also can be ccategorized under this category. Intermingling of Pashtun and Hazarqa race is also seen as third category.

Baba perfectly epitomises fourth category. He does not give respect to mullahs; He utters blasphemy and when Amir condems him for drinking alchohal he says, "but first understand this and understand it now, Amir: You'll never learn anything of value from those bearded idiot" (15). Calling the religious leaders as 'beraded idiots' and 'self-righteous monkies' make Baba an anti-authoreterian and non-confirmist. He has his own morals and definition of sin. After watching the taliban speaking of sin, Farid ridiculs them by saying "And they call themselves Muslims," (238). The mullah says, "Those are not my words, nor the words of my brothers. Those are the words of GOD!" (237), which as actually his own words, thus he blasphemies. Aamir's life is not so religious he articulates, ", I didn't remember the last time I had laid my forehead to the ground in prayer. Then I did remember: the day Dr. Amani gave Baba his prognosis. I had kneeled on the prayer rug, remembering only fragments of verses I had learned in school." (287). Killing is a sin, but kiulling someone for commiiting sin is relaxed as God's punishment. Thus sacred and profane are mixed with one another.

The novel, *The Kite Runner*, thus possesses all the four categories of carnivalesque and grotesque realism in it.Through the carnivalesque set up the author subverts social realities and power structures that holds the state. Class conciousness is broken, institutions such as religion and casteism are thwarted. . Therefore, the text can be considered as a carnivalesque literature.

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Wretched of the Earth: A Study of Dehumanization of Native and Anti-colonial Resistance in George Ryga's *Indian*

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Abstract

The present study attempts to critique the play, Indian, from the postcolonial standpoint. The title Indian denotes the native Canadian Red Indians. We call them, North American Indians. When the European settlers occupy America, they were driven to extreme north to live in cold places. The earliest settlers of Canada were French and English. The Aboriginal Canadians can be categorized into three: The First Nations (Predominant aborigines), Inuit (aborigine Canadians especially from Arctic) and Métis (a mixed race – Children of First nations and European settlers). The aboriginal literature has a rich oral tradition. After the colonization they began to write in English, the settlers 'language. George Ryga also talks about the plight of North American Indians in his play Ecstasy of Rita Joe. The word 'Indian' is often misunderstood as settlers from Indian Subcontinent. In the context of Canada, it implies the aborigines. The paper focuses on how the natives are exploited and dehumanized. The paper, furthermore, attempts to bring out the way in which postcolonial resistance is represented by the author. The paper also deals with what if the submissive subaltern becomes dissent, violent person.

Keywords*: postcolonialism, resistance, dehumanization, native, and indian.*

In the beginning of the play, on the stage, the audience are shown Telephone poles and newly driven fence-posts. Hammer and wooden box are also on the stage. A pile of ashes are also there on the stage. In the inauguration of the performance, INDIAN is sleeping on earth, facing the sun. He has a hat over his face. WATSON is approaching Indian. He yells at Indian and asks him about SAM and ROY. Indian replies, "They not here… Guess they run away".(5) In the course of the conversation, Watson reveals that Alphonse, the kid of Indian is in Watson's home and he has informed Watson of the recent drunken fight of Sam and Roy and the burning of their tent. Now, Watson threatens Indian. "If you run off after your pals, says Watson, "I'm gonna take my gun an' shoot a hole that big through the kids head" (7). Watson, moreover, insists him to "work real hard and be a good boy" (8). This shows how the whites threaten the natives and treats them as slaves.

WATSON informs INDIAN that Agent of Indian Affairs Department visits Indians today. And he insists the Indian to tell him if he has got any complaints and again insists him to not to belly-act to any government guys. Indian describes Indian Whiskey which is sold for Indians. The cheap quality whiskey consists of "Wood Alcohol... maybe half quart formalin, an' the rest is water from sick horse!" (10). When Indian asks Watson to feed him Watson condemns Indian that "Feed ya? Soon's I get my ten bucks squared away, you can lie down and die! But not in my field… go on the road allowance!" (11). Indian addresses Watson that "You hard man, boss… Hard like iron" (11). This shows how the natives are treated by the colonizers. They do not give food; the whisky given to the natives are of low quality which may spoil the health of the natives. Watson moves off from the place. Before leaving, Watson said, "you're working for me... if you got any complaints... you better tell me now" (8), for which Indian retorted, "Complaints? Me? I happy, boss. What you take me for?. Once again the colonial master threatens the native and makes the subaltern silent.

After Watson sets off a Car comes towards Indian and Agent gets out of the car. Agents asks, "There was a talk in the town that your camp burned out last night... everything

okay? Nobody hurt?" (13). Indian affairs that everything is okay and begins to complain about his life. When the agent notices that Indian is wearing small boots he asks, "Aren't those boots tight? I suppose you stole them!" (14). When the Agent asks about the shirt the Indian is wearing, Indian says that he has stolen that shirt from his brother when he was sick and dying. the Agent, by hearing this laughs and asks, the Indian, his name. INDIAN responses, "Mebbe, I forgot... Mabbe I got no name at all" (15). when the Agent threatened the Indian of filing a report on him, Indian says, "How you gonna report me when you dunno who I am?" (15). In the course of play, the Indian becomes eccentric and behaves strangely and unpredictable. Indian challenges the Agent to hit him. Indian Shouts, "You wanna hit me? Come on... hit me...! You kill me easy..and they arrest you-same people who give you car. . . I report you for beating an Indian and you lose your job. Come on - Show me you are a man." (17). When the Agent rerorts, " I got nothing against you, Boy! What's the matter with you.. What do you want from me" (18), INDIAN tells him that he wants nothing from the Agent and listen to him narrating how his brother died. When the agent tries to move from the place, Indian asks him, "You know what is like to kill someone-not with hate-not with any feelings here at all??" (19). The Agent is threatened and begins to get out of the place.

Indian tells the Agent that his brother died few years back and still his treaty payments are received by his friend. By hearing this, the Agent shouts, "There are laws in the country... nobody escapes law" (20). Upon hearing his words, Indian becomes furious and says, "I tell you about my brother.. I tell you everything. Then you tell me if there is a law for all men" (20). With the dread, the Agent again tries to get out of the place and Indian again asks him, "WHAT IF I GET MAD AND TAKE THE HAMMER ON YOU?"(21). The Agent is Thrown to the field in the course of the conversation. INDIAN shouts, "Get up! Or I Kick your brains in!" (21). Then Indian narrates the tragic story of how his brother died.

Indian says his brother was working in a farm and white bossman ordered him to dig a well. The bossman said he would give one dollar for every five feet down. His brother digged twenty. Indian narrates that his brother got into the Canadian blue clay mud. When his brother was trapped he was pulled out by Sam, another native. He was saved but left to be useless. "He was not dead, an' he was not alive."(27), says Indian. He was too near dead to live. White bossman gave him three dollars instead of four dollars and took a dollar for the shovel that he had left in the hole.

When the brother is brought back to the home he became a living dead. He shouts and wakes up at night and in the morning, he is like man who has no mind. He walks around and gets lost in the Canadian bush. His legs and arms dried to the bones such has had polio. He calls Indian and says, "go to another side of the lake tomorrow and take my wife and my son Alphonse... help me to die" (27). Agent who was listening to this asked Indian why didn't he take him to the hospital, for which Indian replies, "Hospital! A dollar he took from dying man for the shovel buried in blue clay... Hospital? Burn in hell!!" (28). Then Indian says, "I.. Killed my brother! In my arms I hold him. He was so light, like a small boy. I hold him... Rock'm back and forward like this.... I get my hands tight on his neck, an' sqeeze an' sqeeze. I KNOW HE DEAD" (28). Indian stole everything, his pants and shirt and finally buried him under his tent. When His brothers wife knows this, she leaves Alphonse with Indian and goes to live with everyman who has her, to forget him. This shows how the natives are dehumanized by the colonizer to mere body and treated as slaves. This tendency can be analogized with Frantz Fanon's notion of dehumanization of native, which is summed up by PramodK.Nayar thus:

The black man is simply treated as a black body, and is trained to be ashamed of it. There is no attempt to engage with something deeper than the colour of the skin, argues Fanon. Further, there is always the fear of the police, the law and torture – forms of physical violence within colonialism. Together, the embodied and psychological violence results in a dehumanization and alienation of the Self. The colonized now exhibits hysteria, as rage and frustration build up. Fanon argues that colonial violence does not stop at the individual body and psyche. The colonized eventually also loses his cultural moorings and cultural identity because he begins to be ashamed of his cultural practices and beliefs in a case of cultural trauma.(81)

The brother of Indian was not treated as human but seen as an instrument by the colonizer. Agent asks his brother's name and Indian says, "Tommy stones" (29) and Agent tells him that he will send police to arrest him. Indian, upon hearing this says, "Name is not Tommy stone.. TOMMY STONE is me.. NAME IS JOHNNY STONE" (29). Indian then claims that he is SAM CARDINAL. Finally, with fury Indian shouts, "You try to find tommy stone..Sam cardinal too. Maybe you find everybody..Maybe you find nobody. All Indians same nobody. I NOBODY, I not even live in this world. I DEAD. You get it? I DEAD. I not just dead. I NEVER LIVES AT ALL." (31). Suddenly Indian becomes mad and says, "What if I choke you till you like rag in my hands.? Hit you with mebbe twenty pound hammer? One brother killed another brother why??? Why? Why??? Why??? " (31). The agent, with fear, breaks off and runs off stage towards his car. The play ends with Indian picks up hammer and driving post vigorously. This shows the eruption of colonial anger which comes out of the native. The act of Indian can be taken as a resistance of a dissent native towards the white colonizer. The accumulated wrath emerges out as a result of depression. Though the act of native seems to be unstable, the reason for his deed can be decoded with the psychological theory postulated by Frantz Fanon.

The play serves as a perfect example of Frantz Fanon's theory of anti-colonial violence. The title of the paper also alludes to Fanon's book with the same name, *Wretched of the Earth*. The reason for colonizer's dehumanization of native is explicated by Fanon, thus:

Violence in the colonies does not only have for its aim the keeping of these enslaved men at arm's length; it seeks to dehumanize them. Everything will be done to wipe out their traditions, to substitute our language for theirs and to destroy their culture without giving them ours. Sheer physical fatigue will stupefy them. Starved and ill, if they have any spirit left, fear will finish the job" (Wretched 15).

Fanon, furthermore, talks about dehumanization and objectification of the native in *Black Skin, White Mask* as "The object is denied in terms of individuality and liberty. The object is an instrument. It should enable me to realize my subjective security. I consider myself fulfilled (the wish for plenitude) and I recognize no division" (164). The Indian's Brother is also treated as a mere object, an instrument. Thus the natives are objectified and dehumanized. Fanon also talks about anti-colonial resistance which happens as a result of violence. In FrabtzFanon's perspective there are three phases of colonialism: Mimicry, Disappointment, and Anti-colonial phase. NasrullahMambroll in his website *literariness.com* explain the three phases thus:

He formulated the three stages in which a national culture is formed: 1) The native, under the influence of the coloniser's culture, seeks to emulate and assimilate it by discarding his own culture (what Homi K Bhabha later calls mimicry). 2) the native acknowledges the wide disparity and discovers that he can never be truly white or white enough for the coloniser to treat him as equal, and returns to study his own culture, with a romantic and celebratory mode. 3) However in the third stage, the native is truly anticolonial, accompanied by a critical analysis of his own culture.

In the play, the native undergoes all the three phrases and finally arrives at the resistance phase, which is anti-colonial in nature. The Indian, at first, tries to become like his master by eating and drinking like him and later realizes that he can never become like his master; eventually, he turns against the colonized, who is an agent, as a symbol of resistance. He shows his resistance through beating and threatening to kill the agent. He gets the cigarette from the agent as an act of mimicry. After mimicry he realizes he can never be colonizer; then he begins to target the agent and resists him. The reason behind the violence is, as fanon points out, theinability to mimic the colonizer. Thus the author portrays both dehumanization of native and colonial resistance in his play, *Indian*.

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SILENT REVOLUTION OF KAMARAJ IN THE EDUCATIONAL POLICY

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Abstract

K. Kamaraj popularly known as Kumaraswamy Kamaraj (1903-1975) who played a decisive role in the regional and National Politics of India for nearly half a century as a freedom fighter, politician, administrator and popular leader. Though he was basically illiterate he tried to impart the best system of education to the millions of rural society irrespective of their caste and creed. He introduced free education and free midday meal scheme. He strove hard for education of the masses by introducing many educational reforms. He introduced the scheme of compulsory education for children up to the age of eleven. This paper "SILENT REVOLUTION OF KAMARAJ IN THE EDUCATIONAL POLICY" is intended to bring out the educational reforms initiated by a multifaceted personality.

Key word : Education, Ministry, Revolution, Mid-day-Meal, Government.

Introduction

K.Kamaraj by his simple and straightforward approach gave priority to education.

Kamaraj took the first step of dropping the scheme introduced by Rajaji.[1] The Madras Government headed by Kamaraj proposed to open schools in all villages with a population of 500 and above. The Government set up more schools after five years. By the year 1961-62 another 12,267 centers with a population of 500 and more were provided with one or more schools. In 1962-1963 his Ministry took steps to provide schools in villages with a population of 300 and above.[2] The number of school going children enrolled in the schools almost doubled within a period of 8 years. From 1956 enrollment in Elementary schools were about 1,924,874 where as the figure almost doubled in 1962-63.[3]

Promotion of educations

The ministry of Kamaraj made considerable progress in promoting primary education by creating more single teacher schools in school less centres.[4] A notable feature in this expansion of secondary education was that majority of the new schools were located in rural areas.[5] In his ministry another achievement was the reorganization of secondary education and new scheme to learn English and introducing diversified courses and also providing technical education . This made secondary education not merely academic but also technically oriented. Under this scheme Engineering, Textile, Technology, Agriculture, Secretarial Course, Home Science were included.[6]

Implemented proposal to education

The Madras Government also implemented the proposals made by the state Secondary Education Implementation committee headed by Dr. A. Lakshmanaswamy Mudaliar, the then Vice-Chancellor of the University of Madras.[8] This new pattern provided for subjects like mathematics, General Science and Social studies under compulsory subjects.[9] The Government of madras realized the need to provide for more trained teachers to meet the demand in primary and secondary education. It came forward to open more training schools both for men and women. In 1953-54 there were 140 training schools of which 76 were for men and 64 for women with a total intake of 19,250 scholars of both sexes.[9] The expenditure also rose from 19 lakhs per year in 1954-55 to 38 lakhs in 1962-63.[10]

Mid-day meal and free uniform schemes

In July 1956 the mid-day meal scheme was launched unofficially on voluntary basis under the guidance of the Director of Public Instructions, Which later became a good incentive for the promotion of education in the state. It was another notworthy change brought about by the Government of Madras under the leadership of K. Kamaraj.[11] The mid-day meal scheme in school was approved in November 1957 as a Voluntary eligible for Government assistance and was also included in the state's Second Five Year Plan with a total provision of Rs. 164.77 lakhs. The scheme was also eligible for central assistance upto 50% of the cost.[12]

In 1957 November financial assistance was esteemed to 60% of the total expenditure while the remaining 40% was expected to be borne by the local public.[13] This increased the number of school going children in the rural areas and they enjoyed the privilege of attending schools for want of one meal in the afternoon.[14] The supply of uniforms free of cost to school children also formed a part of the policy of Kamaraj. The education department provided necessary funds to supply free uniform to school children in 1960.[15]

Improvement movements

The Madras Government also initiated the school improvement movement.[16] The local population took part in the movement by contributing money, clothes, materials for mid-day meals, gift of lands, buildings, construction of quarters for teachers, provision of furniture, equipments for schools and supply of books to the library.[17] The Government of Madras implemented the triple benefit schemes of pension, provident fund and insurance for teachers from 11.04.1955.[18] Fee concession was also granted to the school teachers working in secondary and primary schools.[19] Another concession given to teachers was the education advance to meet the expenses of higher studies of their wards.[20]

Besides primary education, secondary education also made considerable progress during the time of Kamaraj's rule as chief Minister. Due to the effective steps taken by the Government of Madras the college education improved. After a period of 9 years, the number of colleges rose to 63 with a total strength of 49,000 scholars.[21] Technical educational sector especially the professional colleges registered rapid growth. Pension benefit with family pension was provided to the college teachers from 1962-63.[22]

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Crystal structure and chemosensing property of benzimidazole-based probe towards detection of multiple analytes – A combined experimental and DFT approach

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ABSTRACT

A benzimidazole derived probe [(6-(1H-indol-3-yl)-5,6-dihydrobenzo[4,5]imidazo [1,2-c]quinazoline) (IDBIQ)] was synthesized and structurally characterized by single-crystal X-ray diffraction analysis and spectroscopic methods. The probe IDBIQ crystallizes in a monoclinic $P2_1/c$ space group which is found to be highly sensitive and also selective towards the analytes Hg^{II}, F^- and histidine. The probe exhibits turn-off fluorescence for Hg^{II} and histidine while it is ratiometric towards F^- ions. These quenching and ratiometric fluorescent changes have been further explored by ^1H NMR titrations and DFT/TD-DFT calculations. The limit of detection of the probe towards the analytes was found to be in nano-molar range and the receptor was observed to bind with the analytes in 1:1 stoichiometric manner.

1. Introduction

The development of organic molecules for selective detection of chemical and biological species is found to have enormous implications in chemistry, biology as well as to the environment [1,2]. A molecular sensor is intended to be dependent on the host–guest interaction endorsed by hydrogen bonding, electrostatic force, metal–ligand coordination, hydrophobic and Van der Waals interactions. A single probe having various responses towards several analytes is cost efficient and extremely attractive for practical applications [3]. Hence, the sensing of multiple analytes using a single probe is considered to be a challenging task, and therefore forms the active area of research.

Among the metal ions, mercury and its salts are widely used in industrial products, catalysts and paints [4], and hence the release of mercury into the environment thereby causing serious defects in central nervous system and endocrine system even if absorbed in low concentration [5]. Fluoride ion is taken into consideration among various other anions, due to its small size, high electronegativity and tendency to form strongest H-bonds with –NH or –OH groups [6]. Fluoride ions are widely used in dental care [7] as it can prevent osteoporosis [8] and demineralization [9]. Besides its biological role, a high concentration of fluoride ions resulted in Alzheimer's disease, gastric and kidney disorders [10]. L-histidine being one among the 20 amino acids in the protein molecules plays a vital role in human growth and repair of human tissues [11]. Further, it acts as a neuromodulator in mammalian central nervous system [12] and minimizes the internal bleeding resulting from microtrauma. It's over expression could cause variety of diseases including histidinemia, advanced liver cirrhosis and asthma [13]. Many analytical techniques have been employed for L-histidine assay in biological fluids such as capillary electrophoresis [14], voltammetry [15], liquid chromatography [16], colorimetry [17] and fluorimetry [18]. Among these methods, fluorimetric detection is reported to be most favourable one in the detection of histidine due to their sensitivity, stability and reliability [19]. Interestingly, several fluorescent sensors have already been established for the specific sensing of Hg^{II} [20–22], fluoride [23–25] or histidine [26,27] individually. But a single molecular probe that could act as a fluorescent chemosensor for the three analytes Hg^{II}/F^-/histidine through varied response is still unexplored. Hence, the developments of a single probe for the determination of these three analytes viz. Hg^{II}, F^- and histidine even if present in trace level is highly challenging and also demanding.

Ratiometric fluorescent sensing is an attractive technique for precise and rapid visual sensing of biological events, as they allow the measurement of fluorescent intensities at two distinct wavelengths [28]. Thus the present study is aimed to develop a receptor for ratiometric and simultaneous estimation of multiple analytes. In continuation of our

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research in the development of metal ions and anion sensors based on benzimidazole unit [29–31], we report a new benzimidazole attached indole moiety [(6-(1H-indol-3-yl)-5,6-dihydrobenzo[4,5]imidazo[1,2-c]quinazoline) (IDBIQ)], which shows ratiometric behavior towards F^- and quenching response towards Hg^{II} ion and histidine under physiological conditions.

2. Experimental

2.1. Materials

1H-indole-3-carboxaldehyde, 2-(2-aminophenyl)-1H-benzimidazole and metal salts were purchased from Sigma-Aldrich and used as received. The spectral grade methanol solvent was purchased from Merck, India and doubly distilled water was used in photophysical measurements. NMR solvents were purchased from Sigma-Aldrich. Other commercially available solvents were purified and dried according to the method described elsewhere [32]. The perchlorate salts of metal cations such as Hg^{II}, K^{I}, Na^{I}, Li^{I}, Ca^{II}, Mg^{II}, Cu^{II}, Co^{II}, Ni^{II}, Mn^{II}, Zn^{II}, Cd^{II}, Pb^{II}, Fe^{III} and Al^{III}, tetrabutylammonium salts of anions (TBAX, where X = F^-, CH_3COO^-, $H_2PO_4^-$, Cl^-, Br^-, I^-, NO_3^-, CN^-, SCN^- and HSO_4^-) and amino acids (histidine, alanine, aspartic acid, arginine, cysteine, glycine, glutamine, glutamic acid, lysine, serine, tyrosine, tryptophan and valine) were purchased from Sigma-Aldrich and used as received.

2.2. Methods

The NMR spectra (400 MHz) were recorded on a Bruker AMX-400 spectrometer using TMS as internal standard. Electronic absorption spectra were recorded in a JASCO V-550 spectrometer using quartz cuvette of 1 cm path length whereas the fluorescence spectra were recorded in F-4500 Hitachi spectrophotometer with slit width of 5 nm for both excitation and emission. Electrospray ionization mass spectrometry (ESI-MS) analyses were performed in the positive ion mode on a liquid chromatography-ion trap mass spectrometer (LCQ fleet, Thermo Fischer Instruments Limited, US). Elemental analysis was performed on Perkin-Elmer 4100 elemental analyzer, PerkinElmer, USA. The ground state geometries were optimized employing Density Functional Theory using Gaussian 09 program [33] suite at the B3LYP level with the standard basis set, 6-31G(d,p) for IDBIQ, IDBIQ.F^-, IDBIQ.Histidine and the LANL2DZ effective core potential for IDBIQ.Hg^{II}. The optimized structure of IDBIQ concurs well with the single crystal X-ray diffraction structure. All the structures corresponding to true minima of the potential energy surface were established by the vibrational frequency calculations.

2.3. Synthesis of 6-(1H-indol-3-yl)-5,6-dihydrobenzo[4,5]imidazo[1,2-c]quinazoline (IDBIQ)

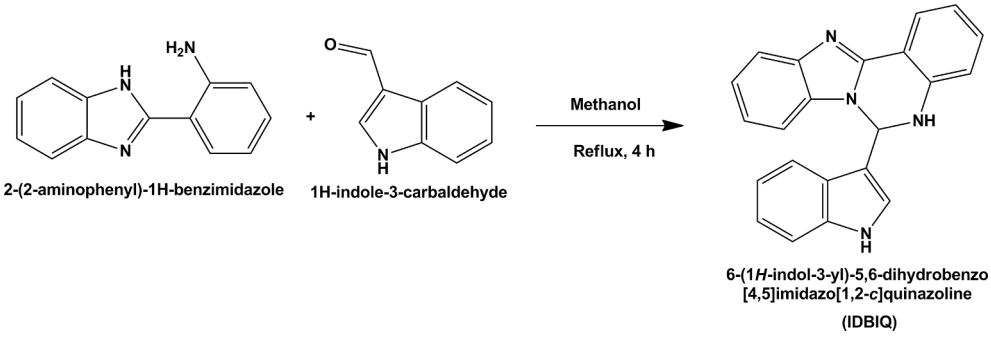
A methanolic solution of 1H-indole-3-carboxaldehyde (1.45 g, 10 mmol) was added to a solution of 2-(2-aminophenyl)-1H-benzimidazole (2.10 g, 10 mmol) in methanol. The resulting mixture was refluxed for 4 h. After completion of the reaction, the reaction mixture was cooled to room temperature. The white precipitate obtained was washed with methanol and then dried to obtain a crystalline compound (Scheme 1). Colourless crystals of IDBIQ suitable for single-crystal X-ray diffraction analysis were obtained after 2 days of slow evaporation in acetonitrile medium. Yield: 87 %. M.p: 127 °C. Cal. for $C_{22}H_{16}N_4$ (%): C, 78.55; H, 4.79; N, 16.66; Found: C, 78.01; H, 5.21; N, 16.78. ^{1}H NMR (400 MHz, DMSO-d_6): δ(ppm) = 5.298 (1H, s, –NH of benimidazole), 5.800–7.610 (aromatic -H, m), 10.342 (1H, s, –NH of indole); ^{13}C NMR (400 MHz, DMSO-d_6): δ(ppm) = 143.4 (C-15), 137.7 (C-2), 132.3 (C-9), 125.2–112.5 (six membered & five membered-C), 111.3 (C-16), 72.6 (C-8) (Fig. S1). ESI-MS (ESI) (*m/z*): 337 [IDBIQ + H]$^+$ (*Calc*. 337. 39) (Fig. S2).

2.4. X-ray crystallographic study

The diffractable crystal size of IDBIQ collected from the mother liquor was dipped in paratone oil and then it was cemented on the tip of glass fibre using epoxy resin. The data of the crystal were collected using MoKα (λ = 0.71073 Å) radiation on a Bruker's APEX-II CCD diffractometer at 293 K. Data integration and reduction were processed by SAINT software [34]. The empirical absorption correction of the collected reflections was carried out by applying SADABS [35]. Fourier full-matrix least-squares refinement methods based on F^2, using SHELX-97 was used to refine all the non-hydrogen atoms anisotropically to resolve the structure [36]. The refinement was carried out using a full matrix least square method on F^2. The geometrical parameters were obtained using PARST31 and SHELXL-97. The graphics of IDBIQ was generated using PLATON-97 [37] and MERCURY 3.8 [38]. Hydrogen atoms bonded to oxygen were located from difference map and allowed to refine with temperature factors riding on those of the carrier atoms. A disordered methanol solvent molecule is present in the crystal packing of IDBIQ. This disorder was refined using 79 restraints (SADI, SIMU and DELU restraints were used).

2.5. Recognition studies

A stock solution of IDBIQ was prepared in methanol. Then IDBIQ was diluted to 1 × 10^{-5} M with methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v). The stock solutions (1 × 10^{-3} M) of the analytes (cations, anions and amino acids) were prepared in deionized water. In each titration, 1 × 10^{-5} M solution of IDBIQ was taken in a quartz optical cell of 1 cm optical path length and then stock solutions of analytes were added into the optical cell gradually using a micropipette. Spectra were measured at 1 min interval after the addition of the ions. In selectivity experiments, the test samples were prepared by adding suitable amount of the analytes into 2 mL solution of IDBIQ (2 × 10^{-5} M).



Scheme 1. Synthesis of IDBIQ.

3. Results and discussion

3.1. Crystal structure of IDBIQ

The single crystal analysis reveals that the compound IDBIQ crystallized in a monoclinic system with space group $P2_1/c$. The perspective view of the crystal structure of IDBIQ displayed a distorted indole moiety and its packing diagram is given in Fig. 1. The crystallographic data are presented in Table S1 and the selected bond distances, and bond angles are listed in Tables S2–S4. The C(9B)-N(2B) and C(9B)-N(3B) bond lengths are almost similar (1.463 Å and 1.474 Å, respectively) which suggest strong bonding of N(3B) and N(2B) to C(9B) through a single bond. The N(4B) of benzimidazole moiety is involved in intermolecular hydrogen bonding interaction with H(21B)-N(2B) of quinazoline. Similarly H(1B)-N(2B) of indole moiety involved in intermolecular hydrogen bonding interaction with CH_3OH molecule (solvent). The core created between indole –NH (N(1B)-H(1B)) and quinazoline –NH (N(2B)-H(21B)) is best suited for H-bond interaction with fluoride/histidine. In molecular packing diagram, the planar quinazoline rings are arranged in parallel manner thereby causing π-π stacked structure (Fig. 1b). The shorter distance between the neighboring quinazoline rings and π-π stacking are the reasons for the fluorescence nature of the probe. Moreover the molecular packing is stabilized by intermolecular hydrogen bonds.

3.2. Recognition behavior of IDBIQ

The recognition behavior of IDBIQ towards different cations (Hg^{II}, K^{I}, Na^{I}, Li^{I}, Ca^{II}, Mg^{II}, Cu^{II}, Co^{II}, Ni^{II}, Mn^{II}, Zn^{II}, Cd^{II}, Pb^{II}, Fe^{III} and Al^{III}), different anions (F^-, CH_3COO^-, $H_2PO_4^-$, Cl^-, Br^-, I^-, NO_3^-, CN^-, SCN^- and HSO_4^-) and different amino acids (histidine, alanine, aspartic acid, arginine, cysteine, glycine, glutamine, glutamic acid, lysine, serine, tyrosine, tryptophan and valine) were examined by absorption and fluorescence spectral studies. The absorption spectrum of IDBIQ in methanol (Fig. S3) shows intense band at 287 nm which may have originated due to intra-ligand $\pi \rightarrow \pi^*$ transition and at 355 nm due to the electronic transitions from non-bonding orbitals on the heteroatoms to π^* orbitals of IDBIQ ($n \rightarrow \pi^*$). The emission spectrum of IDBIQ in methanol shows band at 415 nm at an excitation wavelength of 340 nm. N-2-Hydroxyethylpiperazine-N-2-ethanesulfonic acid (HEPES) is the most commonly used buffer having pH close to the physiological pH of 7.4 [39]. Hence a mixture of methanol and HEPES (20 mM, pH = 7.4) buffer solution (1:9 v/v) was chosen as the solvent system. The addition of HEPES buffer to methanol did not cause significant change in the absorption and emission spectra of IDBIQ.

3.2.1. Absorption spectral studies

The absorption spectral studies were carried out in methanol/HEPES buffer (5 mM, pH 7.2; 1:9 v/v) at room temperature by addition of the analytes. Among the different cations (Hg^{II}, K^{I}, Na^{I}, Li^{I}, Ca^{II}, Mg^{II}, Cu^{II}, Co^{II}, Ni^{II}, Mn^{II}, Zn^{II}, Cd^{II}, Pb^{II}, Fe^{III} and Al^{III}) IDBIQ was found to show response only towards Hg^{II} ions. Upon the addition of Hg^{II} ions, the intensity of the absorption band of IDBIQ at 358 nm was decreased and was shifted to longer wavelength at 381 nm indicating the complex formation of IDBIQ with the Hg^{II} ions (Fig. 2a). The other metal ions did not produce any considerable changes in the absorption spectrum. The probe IDBIQ undergo a solvent assisted 1,5-sigmatropic shift (ring-opening) leading to the *in situ* formation of IMBIA during complex formation with Hg^{II} ions [40]. To further explore the binding of IDBIQ with Hg^{II} ions, the absorption titrations were performed with incremental additions of Hg^{II} ions to establish the stoichiometry of IDBIQ.Hg^{II}. Four distinct isosbestic points at 410, 368, 331 and 256 nm were observed indicating the prominent transformation of IDBIQ into IMBIA.Hg^{II} complex (Fig. 2b). Also, the recognition behavior of the receptor IDBIQ towards different anions have been investigated in (0–5 μM) in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v).

Among different anions (F^-, CH_3COO^-, $H_2PO_4^-$, Cl^-, Br^-, I^-, NO_3^-, CN^-, SCN^- and HSO_4^-) IDBIQ could recognize F^- ions. As depicted in Fig. 2c, the addition of tetrabutylammonium fluoride ions to the solution of IDBIQ causes a blue shift with decrease in intensity of band corresponding to IDBIQ at 358 nm owing to the formation of anion-receptor complex due to high electronegativity of fluoride ion and its small size compared to other halide ions [41], although other anions could not induce any significant changes in the absorption spectrum. The absorption titration was carried out with incremental additions of fluoride ions to establish the stoichiometry of IDBIQ.F^-. The four distinct isosbestic points at 373, 331, 296 and 219 nm were observed during the titration of IDBIQ with F^- indicating the formation of IDBIQ.F^- anion-receptor complex (Fig. 2d).

Also, the recognition behavior of IDBIQ towards various amino acids (histidine, alanine, aspartic acid, arginine, cysteine, glycine, glutamine, glutamic acid, lysine, serine, tyrosine, tryptophan and valine) has been investigated in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v). Upon addition of histidine, the absorbance band of IDBIQ at 358 nm diminished while the other amino acids could not produce any substantial changes in the absorption spectrum showing the interaction between the IDBIQ and histidine (Fig. 2e). The absorption titrations were carried out with incremental additions of histidine (0–5 μM) to ascertain the stoichiometry of IDBIQ.Histidine. Two distinct isosbestic points at 283 and 255 nm were observed confirming the complex formation of IDBIQ with histidine (Fig. 2f).

3.2.2. Emission spectral studies

The fluorescence response of IDBIQ in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v) toward several metal ions (Hg^{II}, K^{I}, Na^{I}, Li^{I}, Ca^{II}, Mg^{II}, Cu^{II}, Co^{II}, Ni^{II}, Mn^{II}, Zn^{II}, Cd^{II}, Pb^{II}, Fe^{III} and Al^{III}) was

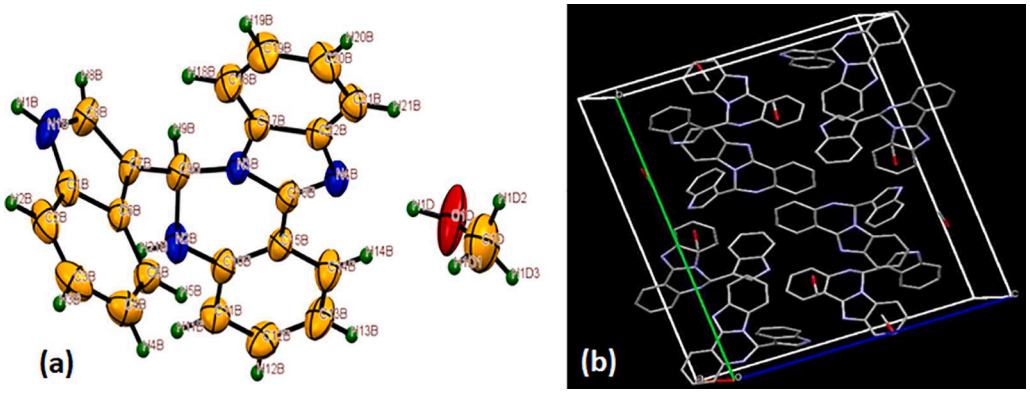


Fig. 1. (a) X-ray crystal structure (thermal ellipsoid plot at 50% probability level) (red: oxygen; blue: nitrogen; Sandal: carbon; green: hydrogen), (b) Packing diagram of IDBIQ.

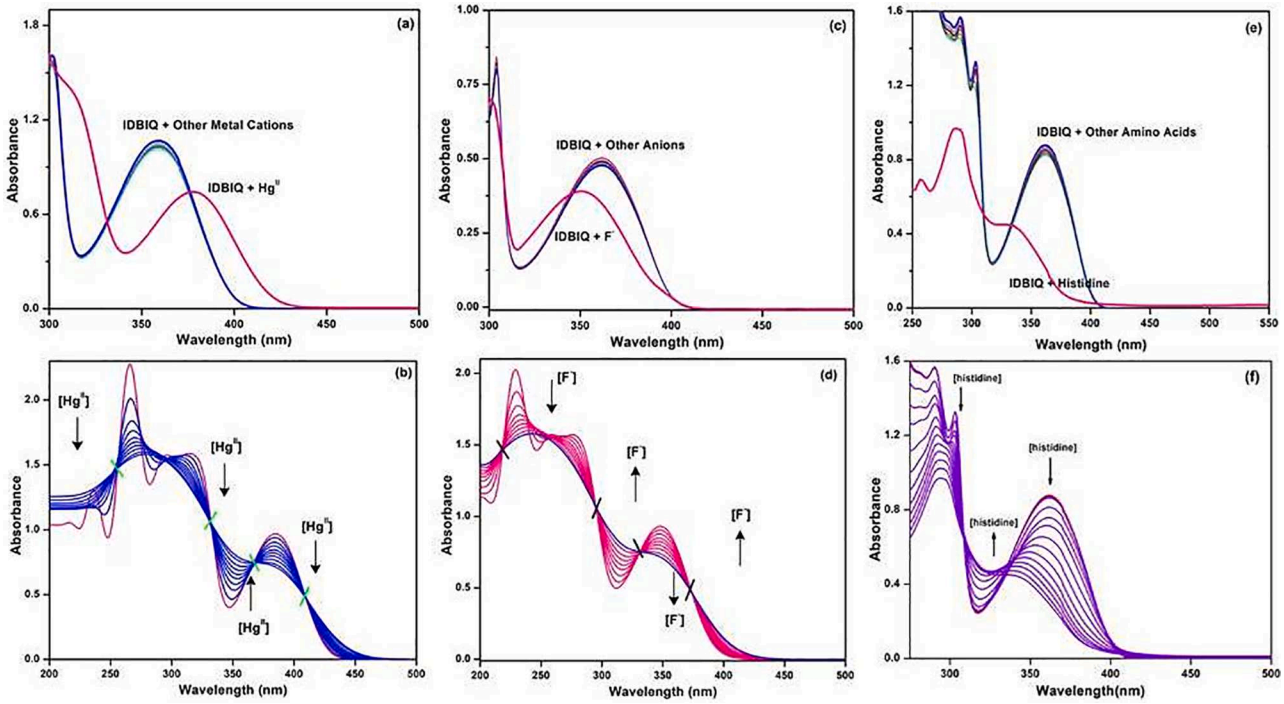


Fig. 2. Absorption spectra of IDBIQ (10 μM), upon addition of (a) various metal ions (b) increasing amount of Hg^{II} (0–5 μM) (c) various anions and (d) increasing amount of F^- (0–5 μM) (e) various amino acids and (f) increasing amount of histidine (0–5 μM) in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v).

investigated. When excited at 340 nm, the fluorescence intensity of IDBIQ was positioned at 420 nm with a quantum yield of $\phi = 0.3246$. Addition of Hg^{II} ions lead to considerable emission quenching at 420 nm ($\phi = 0.2977$) called turn-off fluorescence which was endorsed to the heavy atom effect and was trustworthy to chelation enhanced quenching (CHEQ) mechanism [42], whereas the other cations did not impart any significant changes in the fluorescence profile of IDBIQ (Fig. 3a). Besides, to recognize the properties of IDBIQ as a receptor for Hg^{II}, the titration of IDBIQ was carried out with increasing concentration of Hg^{II} for which the emission intensity was gradually quenched showing a high selectivity towards Hg^{II} (Fig. 3b).

The effect of anions on the emission properties of IDBIQ have been investigated in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v). Among various anions (F^-, CH_3COO^-, $H_2PO_4^-$, Cl^-, Br^-, I^-, NO_3^-, CN^-, SCN^- and HSO_4^-) analysed, interestingly, the fluoride anion (F^-) decreased the fluorescence intensity of IDBIQ at 420 nm ($\phi = 0.1803$)

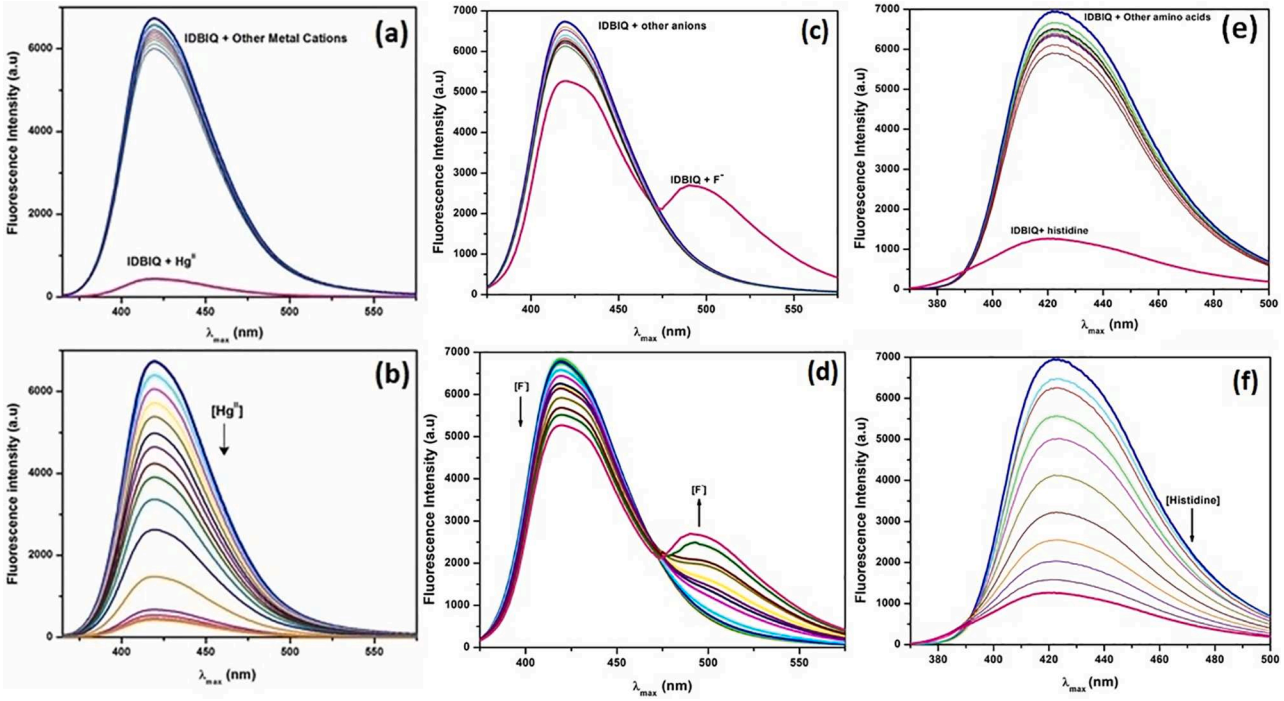


Fig. 3. Emission spectra of IDBIQ (10 μM), upon the addition of (a) various metal ions (b) increasing amount of Hg^{II} (0–5 μM) (c) various anions and (d) increasing amount of F^- (0–5 μM) (e) various amino acids and (f) increasing amount of histidine (0–5 μM) in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v).

and exhibiting a new emission at 493 nm (Fig. 3c). This may be due to the change in charge transfer character of the emissive species [43]. This behavior of the emission spectrum gives a fascinating view of the potential ratiometric determination of analytes by comparing the ratio of intensities of the two bands as a function of analyte concentration. Also, this method is preferable over single wavelength analysis, since the system is free from the errors associated with receptor concentration, photo-bleaching, environmental effects and so on [44]. The emission titration of IDBIQ with increasing concentration of F^- ions exposed that the emission intensity of IDBIQ was decreased with emerging of new band at 493 nm having an isosbestic point at 473 nm. This suggests the highly selective nature of IDBIQ towards F^- ions (Fig. 3d).

The emission studies of IDBIQ with various amino acids (histidine, alanine, aspartic acid, arginine, cysteine, glycine, glutamine, glutamic acid, lysine, serine, tyrosine, tryptophan and valine) also have been investigated in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v). Upon addition of histidine (0–5 μM) among the various amino acids, the emission intensity of IDBIQ (10 μM) is significantly decreased at 420 nm ($\phi = 0.2802$), while the other amino acids did not show any changes (Fig. 3e). The emission titration of IDBIQ with incremental concentration of histidine is found to quench the emission intensity of IDBIQ suggesting its selectivity towards histidine (Fig. 3f).

3.2.3. Binding stoichiometry

To determine the binding mode of IDBIQ with Hg^{II} ion, F^- ion and histidine, the stoichiometry of the complex formation has been determined by Job's plot analysis [45] (Fig. 4). This plot shows a break point at the mole fraction value of 0.5 for all the three analytes Hg^{II}, F^- and histidine indicating the 1:1 host–guest binding stoichiometry.

The 1:1 binding stoichiometry has been further confirmed by ESI-mass spectra. The ESI-mass spectra establish the 1:1 complex formation of Hg^{II} with *in situ* IMBIA and the *m/z* peak at 540.01 (*calc*. 540.12) is attributed to $[IMBIA.Hg^{II} + H]^+$ species in which the Hg^{II} complex is expected to be formed with the 1,5-sigmatropic shift (ring-opening) of IDBIQ ligand (Fig. 5a).

Moreover, the ESI-mass spectra ascertain the 1:1 complex formation of F^- with IDBIQ and the *m/z* peak obtained at 355.07 (*calc*. 355.39) is ascribed to $[IDBIQ.F^-]^+$ species (Fig. 5b). The observed *m/z* peak at 492.22 (*calc*. 492.55) in Fig. 5c confirms the formation of [IDBIQ.Histidine + H]$^+$ species.

The association constant (K_a) was calculated using the modified Benesi-Hildebrand equation and from B-H plot (Fig. 6) it is found to be $2.75 \times 10^5\ M^{-1}$, $2.24 \times 10^5\ M^{-1}$ and $2.35 \times 10^5\ M^{-1}$ for Hg^{II}, F^- and histidine respectively.

3.2.4. Sensitivity of the probe

The sensitivity of the probe is dependent on the limit of detection (LOD) value. The lower LOD value indicates the better sensitivity of the probe. The LOD of IDBIQ towards the analytes has been calculated by the 3σ method using the following equation [46],

$$LOD = \frac{K \times Sb1}{S}$$

where K = 2 or 3 (2 in this case), Sb1 is the standard deviation of the blank IDBIQ and S is the slope of the calibration curve obtained from linear dynamic plot of emission intensity vs. [A] in μM (A = analytes) (Fig. 7). The values of LOD have been determined to be 8.24 nM (for Hg^{II}), 7.72 nM (for F^-) and 8.03 nM (for histidine), and the observed results demonstrate that IDBIQ is highly sensitive towards the Hg^{II}, F^- and histidine, respectively. The LOD values for Hg^{II}, F^- ions and histidine are compared with other ligands and found to be better than those previously reported in the literature (Table S5).

3.2.5. Selectivity of the probe

The uniqueness of a probe is its capability to precisely analyse the analytes in a complex environment consisting of different competing analytes. To corroborate this, the selectivity of IDBIQ was studied in presence of various competing cations/anions/amino acids in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v) at room temperature. The emission intensity of Hg^{II} bound IDBIQ decreased at 420 nm ($\lambda_{ex} = 340$ nm), while the other metal ions did not make any significant changes in the emission intensity of IDBIQ (Fig. 8a). This exploration reveals that the IDBIQ is highly selective towards Hg^{II} ions in methanol/HEPES buffer, even in the presence of competing metal ions. Besides, the fluorescence intensity of F^- bound IDBIQ was found to be decreased at 420 nm in the presence of other anions demonstrating the excellent selectivity for F^- ion (Fig. S4). Similarly, the fluorescence intensity of histidine bound IDBIQ was quenched in the presence of various other amino acids showing the selectivity of the probe for histidine (Fig. S5). This shows that IDBIQ could detect histidine even if present with other amino acids. The selectivity of IDBIQ in the presence of Hg^{II}/ F^-/histidine was detected (Fig. 8b). When the Hg^{II} ions were added to IDBIQ.F^-, the quenched fluorescence of IDBIQ was recovered due to Hg^{II}:F^- ion pair formation.

But the IDBIQ emission intensity was quenched when F^- ions were added after the addition of Hg^{II} ions. This may be due to the complex formation of Hg^{II} with IDBIQ which dominates the ion pair formation [47]. Addition of Hg^{II} to IDBIQ:histidine reverses the quenched fluorescence of IDBIQ due to the greater ability of complex formation of Hg^{II} with histidine when compared to imidazole of IDBIQ. The same has been observed when histidine was added to IDBIQ:Hg^{II} where the Hg^{II} reversibly binds with histidine leaving free IDBIQ thereby restoring its emission. Addition of F^- to IDBIQ:Hg^{II}:Histidine quenches the fluorescence due to formation of intermolecular hydrogen bonding with IDBIQ. Thus, IDBIQ can be used as the selective sensor for the Hg^{II} metal ions over competing environmental systems [48].

3.2.6. pH study

To assess the practical applicability of IDBIQ, the effect of pH on its emission intensity in the presence and absence of analytes (1.0×10^{-4} mol L^{-1}) has been performed in 5 mM HEPES buffer by regulating the pH

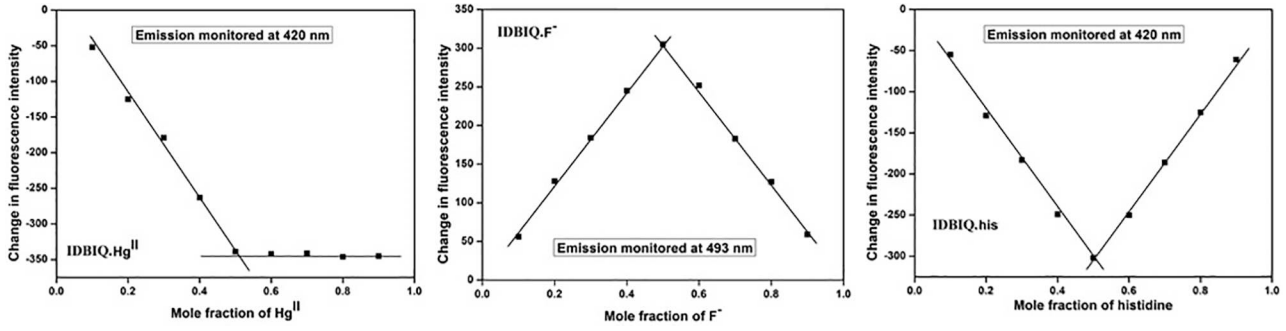


Fig. 4. Job's plot for IDBIQ with analytes.

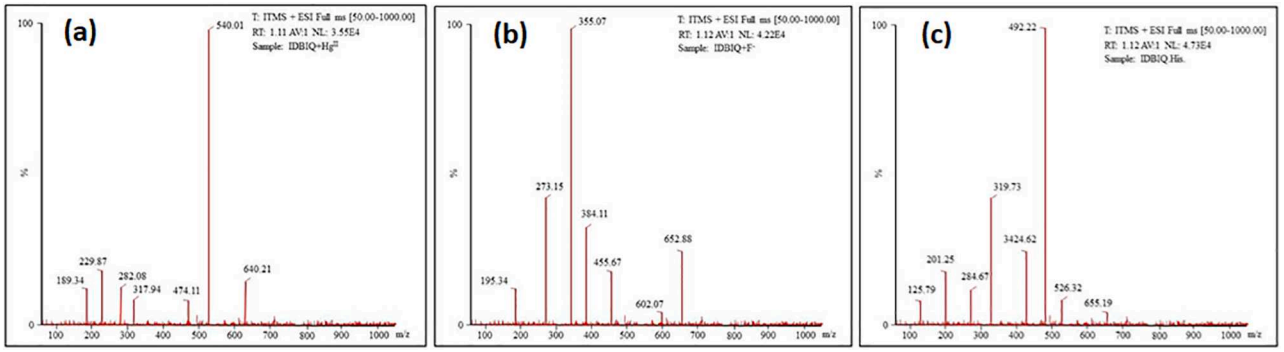


Fig. 5. ESI-mass spectra of (a) IDBIQ.Hg^{II}, (b) IDBIQ.F^- (c) IDBIQ.Histidine.

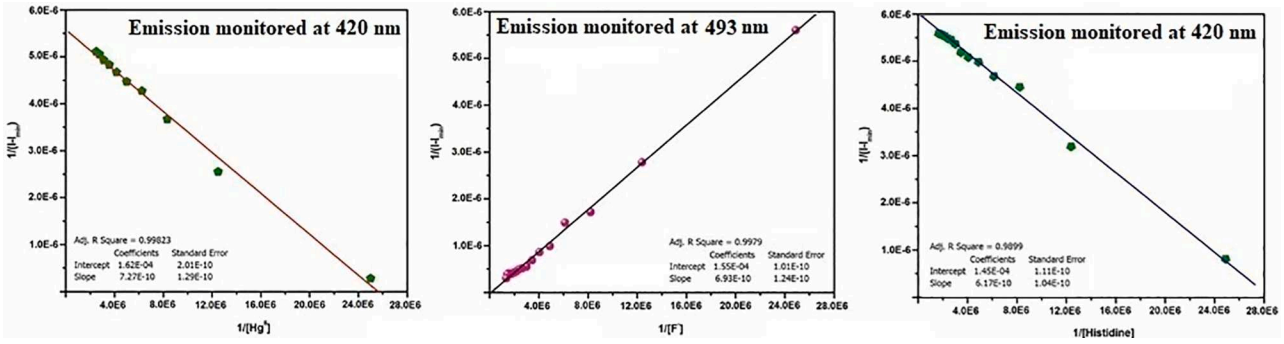


Fig. 6. B-H plot from emission titration data of IDBIQ with varying concentration of Hg^{II}, F^- & histidine.

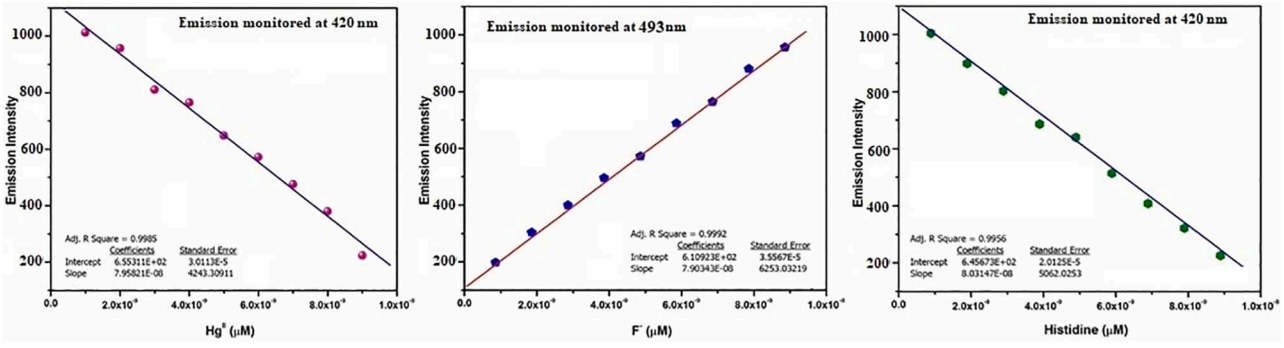


Fig. 7. Emission intensity of IDBIQ on varying concentration of Hg^{II}, F^- & histidine.

using $HClO_4$ and NaOH (Fig. 9). The probe IDBIQ exhibited strong emission intensity within a wide pH range of 6.5 to 7.5. Upon addition of Hg^{II}, the emission intensity of IDBIQ was quenched at 420 nm, whereas the addition of fluoride ion caused an increase in fluorescence intensity at 493 nm while addition of histidine decreased the fluorescence intensity at 420 nm. The observed results demonstrated that the optimum range of sensing Hg^{II} ion, fluoride ion and histidine by IDBIQ is between the pH 6.5 and 7.5 and hence IDBIQ sensor could be applied for biological systems.

3.2.7. ^1H NMR titrations

The ^1H NMR titrations were performed to understand the complexation properties of IDBIQ with the analytes in methanol-d_4. Considering the reaction with Hg^{II} ions (Fig. 10), a 1,5-sigmatropic type shift of IDBIQ takes place forming *in situ* IMBIA [49] which then coordinates with Hg^{II} forming IMBIA.Hg^{II} complex. Upon addition of (0.5–2.0 equivalent) Hg^{II} ions, the azomethine nitrogen atom and aromatic protons are shifted to downfield region due to the complexation of IMBIA with Hg^{II} ions. Also, the benzimidazole –NH proton is shifted downfield and the indole –NH proton (10.10 ppm) is completely vanished indicating the deprotonation of indole and benzimidazole nitrogen atoms coordinated to the metal ion. The observed results show that Hg^{II} is coordinated to *in situ* IMBIA in a tridentate manner with imine nitrogen, deprotonated indole and benzimidazole nitrogen atoms.

^1H NMR titrations recorded for binding of IDBIQ with histidine/F^- analytes (Fig. S6 & S7) in methanol-d_4 at room temperature shows that addition of analytes (0.5–2.0 equivalents) to IDBIQ, causes shift in –NH proton signals (4.23 ppm for benzimidazole –NH proton and 9. 45 ppm for indole –NH proton) and aromatic proton signals towards downfield region indicating that histidine/F^- analytes are coordinated with –NH protons of IDBIQ through intermolecular hydrogen bonding. The addition of F^- ions to IDBIQ leads to the formation of N–H……F hydrogen bond and hence electron density on benzimidazole moiety is increased. This causes the change in fluorescence by enhancing the extent of intramolecular charge transfer (ICT) from the imidazole anion to other aromatic rings thereby causing a new emission at 493 nm [50]. The histidine interacts with the probe through hydrogen bonding thereby disturbing the original conformation of IDBIQ. The imidazole ring in

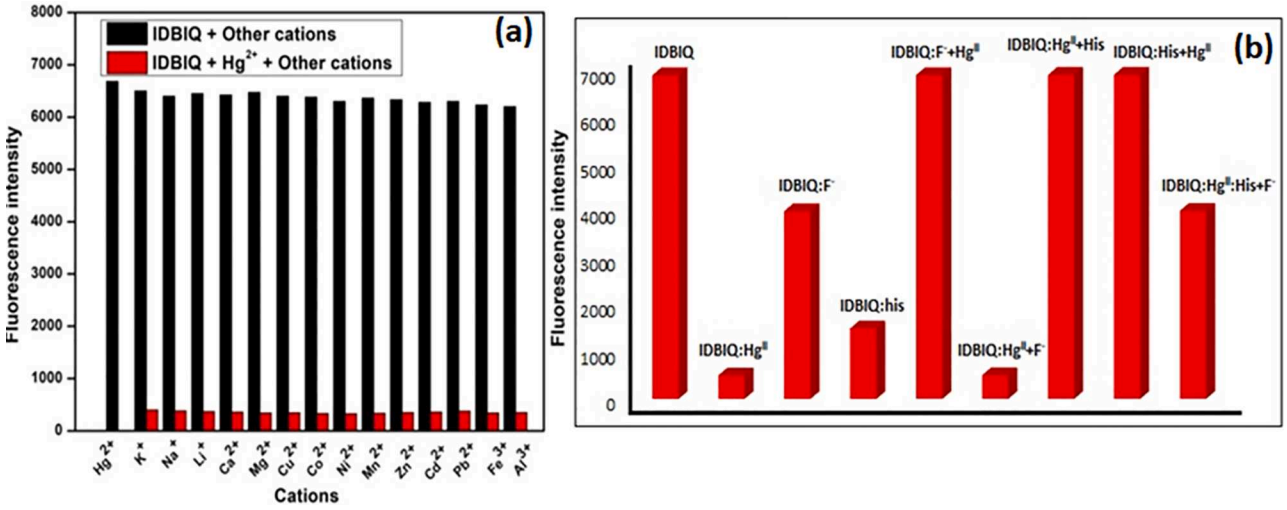


Fig. 8. (a) Emission responses of IDBIQ (10 μM) with Hg^{II} in presence of other metal ions, (b) Competition experiments of IDBIQ in the presence of Hg^{2+}/F^- ions and histidine in methanol/aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v) at room temperature.

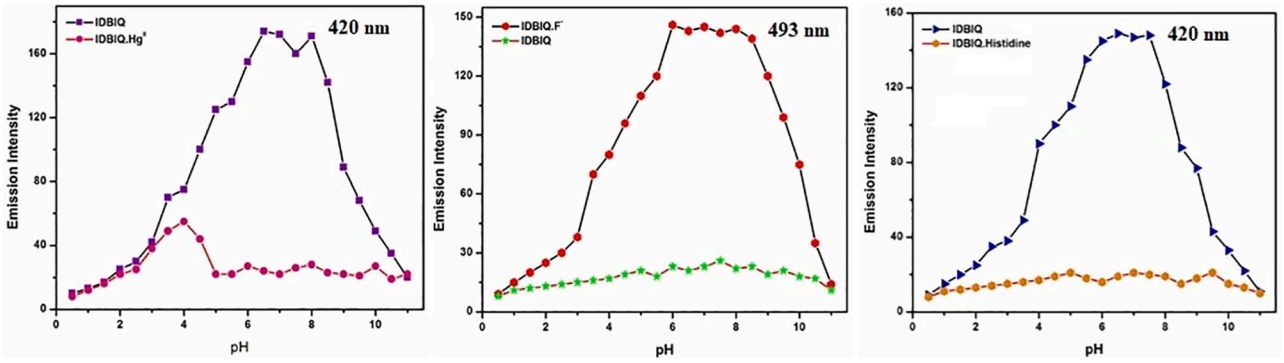


Fig. 9. Emission response of IDBIQ with Hg^{II}, F^-, histidine (10 μM) as a function of pH in methanol/ aqueous HEPES buffer (5 mM, pH 7.2; 1:9 v/v).

histidine can interact through π-π stacking interactions via., photoinduced electron transfer mechanism (PET) thereby causing quenching of IDBIQ fluorescence [51,52] compared to other aliphatic amnio acids. Also in histidine, the imidazole ring containing electron-rich pyrrole nitrogen and an electron-withdrawing pyridine nitrogen increases the dominance of its charge-separated resonance structure and hence the imidazole π–π stacking is more strongly bound than the benzene rings present in other aromatic amino acids such as tyrosine and tryptophan [53]. All these findings prove the 1:1 binding stoichiometry of the probe with Hg^{II}/F^-/histidine analytes. Based on the above spectral confirmations, the probable binding model for the interaction between the receptor with analytes is shown in Scheme 2.

3.2.8. *Reversibility studies*

The reversibility of a probe is very much desired to perform its practical applications and to confirm that the absorption or emission changes are not due to chemical reactions. The reversible performance of the proposed sensor was carried out by adding EDTA to a solution of IDBIQ/ Hg^{II} (10 μM) in methanol (1.0 mL). The addition of EDTA causes revival of the original emission spectra of IDBIQ at room temperature. Further addition of Hg^{II} ions again quenches the fluorescence of IDBIQ (Fig. 11). This proves the sensor IDBIQ to be reversible which can be reused in the effective sensing of Hg^{II} by addition of suitable reagents.

3.3. *DFT studies*

To investigate the proposed binding mode and changes in optical properties of IDBIQ upon addition of analytes, DFT studies were performed at the Becke's three parameterized Lee-Yang-Parr (B3LYP/6-31G) and LanL2DZ(d) levels. To further determine the electronic behavior of the probe in the presence and absence of analytes, TD-DFT calculations were performed for optimized structures (Fig. 12) using the same functional and basis set. The HOMO, LUMO energies and HOMO-LUMO energy gap are shown in Table S6. In IDBIQ, the HOMO resides on the whole molecule while LUMO span on quinazoline moiety, whereas in IMBIA (formed *in situ*) HOMO resides intensively on quinazoline moiety and LUMO spreads on indole moiety (Fig. S8). Upon addition of Hg^{II}, quinazoline moiety retains its HOMO character, LUMO is distributed over metal centre by imparting substantial charge transfer. For IDBIQ.F^-/histidine, the whole molecule behaves as HOMO, while the electron density of LUMO is localized mainly on indole and histidine moieties respectively. Further bond length measurements substantiate the H-bonding interaction between IDBIQ and F^-/histidine. In free receptor IBDIQ, the optimized bond length of –NH (indole) and –NH (quinazoline) is calculated to be 1.006Å and 1.009Å. Upon binding with F^-/histidine, the bond length of –NH (quinazoline) and –NH (indole) elongated to 1.017Å, 1.074Å and 1.023Å, 1.015Å respectively. This, in turn, shows the strong intermolecular H-bonding interaction between IDBIQ and F^-/histidine. Additionally, the lowering of HOMO-LUMO energy gap after the addition of F^- and histidine corroborates the experimentally observed shift of emission bands. Thus, the proposed binding model is rational and reasonable based on DFT studies.

The heat of formation of the receptor with Hg^{II}, F^- and histidine were also explained by DFT studies. For Hg^{II} it is calculated using the formula,

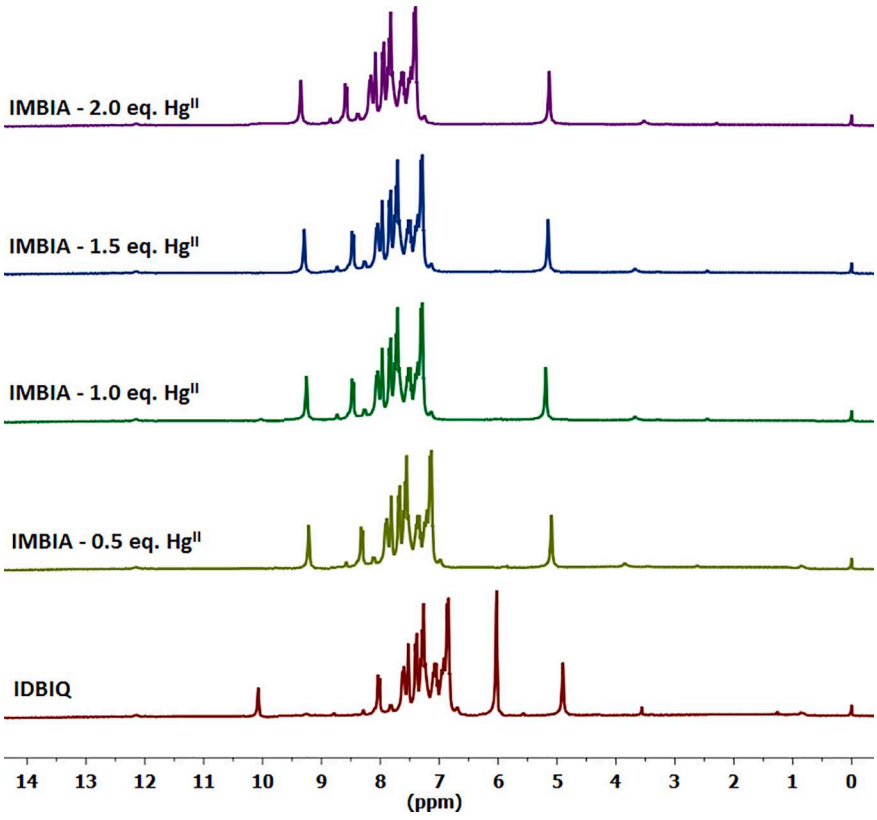
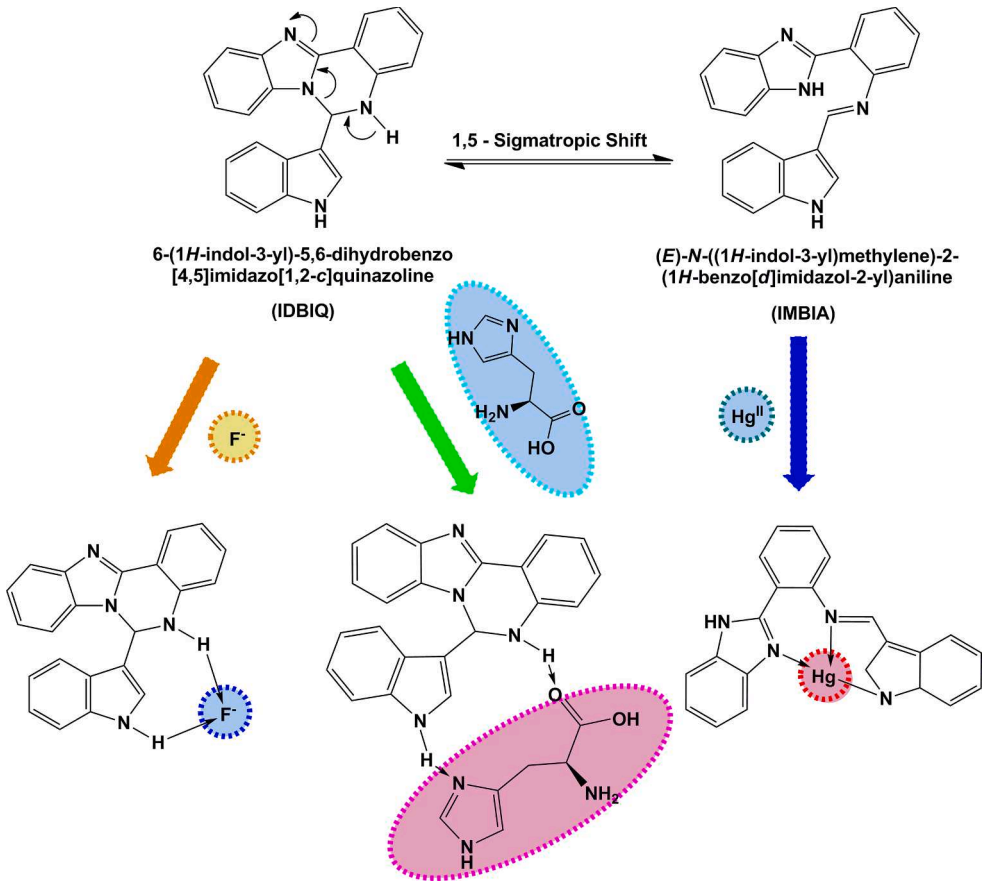


Fig. 10. ^{1}H NMR spectra of IDBIQ with different equiv. of Hg^{II} in methanol-d_4.



Scheme 2. The proposed host–guest binding mode between IDBIQ and analytes (Hg^{II}, F^{-} and histidine).

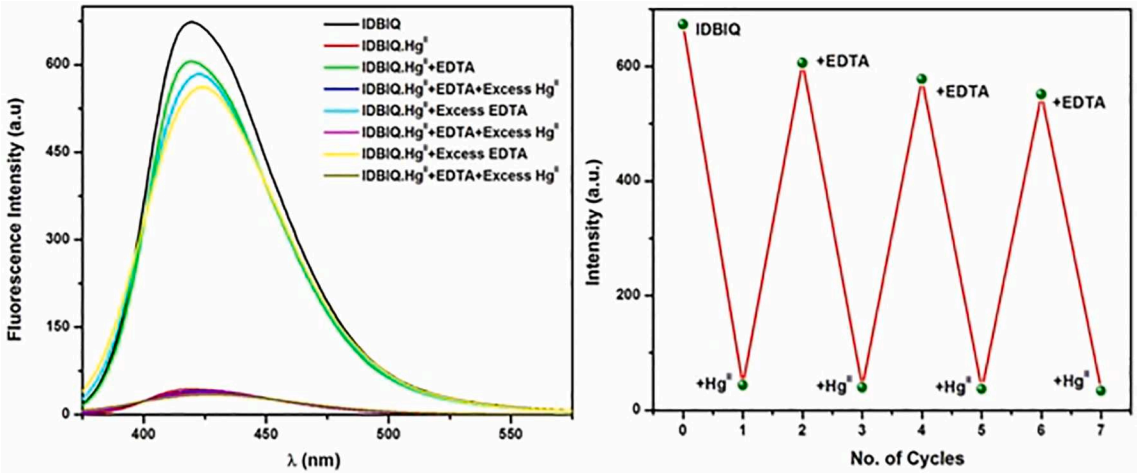


Fig. 11. Sensor reversibility and no. of cycle of IDBIQ.Hg^{II} with EDTA.

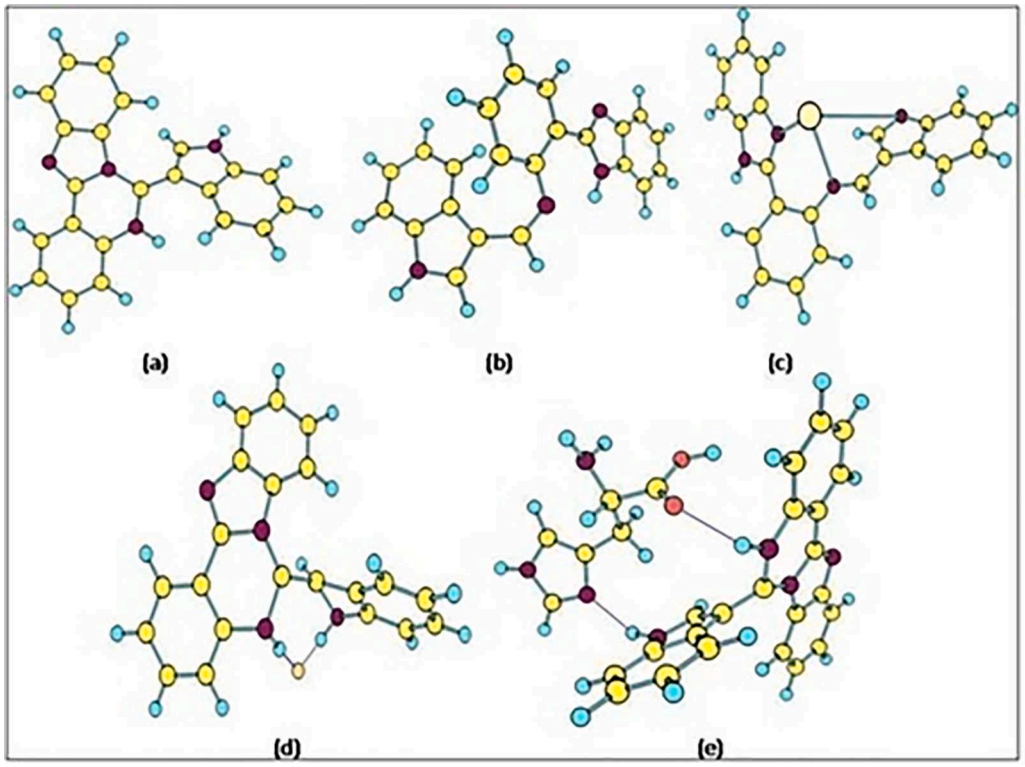


Fig. 12. Optimized structures of (a) IDBIQ; (b) IMBIA; (c) IMBIA.Hg^{II}; (d) IDBIQ.F^{-} and (e) IDBIQ.Histidine, respectively.

$$\Delta_f H^0(\text{IMBIA.Hg}^{II}) = [E_{el}(\text{IMBIA.Hg}^{II}) + H_{corr}(\text{IMBIA.Hg}^{II})] - [E_{el}(\text{IMBIA}) + H_{corr}(\text{IMBIA})] + [E_{el}(\text{Hg}^{II}) + H_{corr}(\text{Hg}^{II})]$$

where E_{el} is the energy of the molecule and H_{corr} is the thermal correction to enthalpy. The heat of formation for F^- and histidine were also calculated in a similar fashion. For all of them we get a negative heat of formation indicating that the reaction is exothermic and the binding is expected to be strong. The highest value is observed for IMBIA.Hg^{II} (−974.03 KJ/mol) followed by IDBIQ.F^{-} (−611.20 KJ/mol). The lowest value is observed in IDBIQ.Histidine (−269.65 (KJ/mol).

4. Conclusion

This report demonstrated a new benzimidazole based smart probe [(6-(1H-indol-3-yl)-5,6-dihydrobenzo[4,5]imidazo[1,2-c]quinazoline) (IDBIQ)] for selective detection of Hg^{2+}/F^-/histidine analytes. The synthesis of the probe IDBIQ and its detailed structural characterizations have been done by various spectral techniques and the structure has been resolved by single crystal X-ray analysis. The absorption and

emission spectral titrations supported with competitive binding studies, detection limits, and binding constants, demonstrated remarkable detection of the Hg^{2+}/F^{-}/histidine analytes with IDBIQ showing the paramount results. The binding of IDBIQ with analytes (1:1) was explained by absorption, fluorescence and ^{1}H NMR titrations and ESI mass spectrometry. The reversibility of IDBIQ with Hg^{II} was assessed by the addition of EDTA showing its reusability. The binding of Hg^{2+}/F^{-}/histidine with chemosensor IDBIQ was further supported by DFT studies.

CRediT authorship contribution statement

D. Jeyanthi: Conceptualization, Resources, Supervision, Writing – review & editing. **C. Joel:** Formal analysis, Software, Validation, Supervision, Writing – review & editing. **R. Biju Bennie:** Writing – review & editing, Writing – original draft, Validation, Supervision, Data curation. **D. Jim Livingston:** Conceptualization, Resources, Writing – review & editing, Supervision. **C. Balakrishnan:** Data curation, Supervision, Validation, Writing – review & editing, Project administration.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

The experimental part on Job's plot, quantum yield calculations and determination of association constant (Ka) are given in the supplementary. CCDC 1950035 contains the supplementary crystallographic data for IDBIQ. These data can be obtained free of charge via http://www.ccdc.cam.ac.uk/conts/retrieving.html, or from the Cambridge Crystallographic Data Centre, 12 Union Road, Cambridge CB2 1EZ, UK; fax: (+44) 1223-336-033; or e-mail: deposit@ccdc.cam.ac.uk. Supplementary data to this article can be found online at https://doi.org/10.1016/j.jphotochem.2022.113950.

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Relaxed Skolam Mean Labeling of 6 – Star Graphs with Partition 3, 3

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Abstract*: Existence Relaxed skolam mean labeling for a 6 – star graph** $G = K_{1,\alpha_1} \cup K_{1,\alpha_2} \cup K_{1,\alpha_3} \cup K_{1,\beta_1} \cup K_{1,\beta_2} \cup K_{1,\beta_3}$ ***with partition 3,3 with a certain condition is the core topic of the following article. Trial and error method is used to find the existence of the relaxed skolam mean labeling of 6 - star graph with partition 3, 3 holding a specific condition.

***Keywords*: Star Graphs, Union of Star Graph, Labeling, Skolem Mean Labeling, Relaxed Skolam Mean Graph.**

I. INTRODUCTION

The concept of labeling in Graphs plays a vital and undeniable role in the field of planning and networking. Some of the most import labeling functions which are discovered far more earlier and famous were graceful labeling, prime labeling, cordial labeling, mean labeling etc.. In this article we discuss a type of labeling namely Relaxed Skolam Mean Labeling which is extracted from Skolam Mean Labeling of Graphs introduced by V. Balaji et.al.[5] in the year 2010 which in turn is derived from the mean labeling of Graphs .

II. PRELIMINARIES

Definition 2.1 [5]: A graph $G=(V, E)$ with p vertices and q edges is said to be a relaxed skolam mean graph if there exists a function $f : V \to \{1, 2, 3, ..., p+1 = |V| + 1\}$ such that the induced edge map $f^* : E \to \{2, 3, ..., p = |V| + 1\}$ given by

$$f^*(e = uv) = \begin{cases} \dfrac{f(u) + f(v)}{2} & \text{if } (f(u) + f(v)) \text{ is even} \\ \dfrac{f(u) + f(v) + 1}{2} & \text{if } (f(u) + f(v) + 1) \text{ is even} \end{cases}$$

The resulting distinct edge labels are from the set $\{2, 3, ..., p+1 = |V| + 1\}$

Note: There are p vertices and available vertex labels are p + 1 and hence one number from the set $\{1,2,3,...,p+1=|V|+1\}$ is not used and we call that number as the relaxed label. When the relaxed label is p + 1, the relaxed mean labeling becomes a skolam mean labeling.

Result: The three star graph $K_{1,a} \cup K_{1,b} \cup K_{1,c}$ satisfies relaxed skolam mean labeling if $a + b \le c \le a + b + c$.

III. MAIN RESULT

Theorem: The 6 - star graph $G = K_{1,\alpha_1} \cup K_{1,\alpha_2} \cup K_{1,\alpha_3} \cup K_{1,\beta_1} \cup K_{1,\beta_2} \cup K_{1,\beta_3}$ where $\alpha_1 \le \alpha_2 \le \alpha_3$ and $\beta_1 \le \beta_2 \le \beta_3$ is a relaxed skolam mean graph if $\beta_1 + \beta_2 + \beta_3 - \alpha_1 - \alpha_2 - \alpha_3 = 7$.

Proof: Let $\sigma_1 = \alpha_1; \sigma_2 = \alpha_1 + \alpha_2; \sigma_3 = \alpha_1 + \alpha_2 + \alpha_3$ and $\delta_1 = \beta_1; \delta_2 = \beta_1 + \beta_2; \delta_3 = \beta_1 + \beta_2 + \beta_2 + \beta_3$.

Consider the 6 - star graph

$G = K_{1,\alpha_1} \cup K_{1,\alpha_2} \cup K_{1,\alpha_3} \cup K_{1,\beta_1} \cup K_{1,\beta_2} \cup K_{1,\beta_3}$.

The condition $\beta_1 + \beta_2 + \beta_3 - \alpha_1 - \alpha_2 - \alpha_3 = 7$ gives rise to the case $\delta_3 = \sigma_3 + 7$ In this case we will establish that the graph G is relaxed skolam mean.

Let the set of vertices of G be $V = V_1 \cup V_2 \cup V_3 \cup V_4 \cup V_5 \cup V_6$ where

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$V_k = \{v_{k,i}: 0 \le i \le \alpha_k\}; 1 \le k \le 3$ and

$V_4 = \{v_{4,i}: 0 \le i \le \beta_1\}; V_5 = \{v_{5,i}: 0 \le i \le \beta_2\}; V_6 = \{v_{6,i}: 0 \le i \le \beta_3\}$. Let the edge set of G be $E = \bigcup_{k=1}^{3} \{v_{k,0}v_{k,i}: 1 \le i \le \alpha_k\} \cup \bigcup_{k=4}^{6} \{v_{k,0}v_{k,i}: 1 \le i \le \beta_{k-3}\}$.

Case: Let $\delta_3 = \sigma_3 + 7$

G has $\sigma_3 + \delta_2 + 6 = 2\sigma_3 + 13$ vertices and

$\sigma_3 + \delta_2 = 2\sigma_3 + 7$ edges.

We define the relaxed skolam vertex function

$f : V \to \{1, 2, ..., p+1 = \sigma_3 + \delta_2 + 6 + 1 = 2\sigma_3 + 14\}$ as follows:

$f(v_{1,0}) = 1; \quad f(v_{2,0}) = 3; \; f(v_{3,0}) = 5;$

$f(v_{4,0}) = \sigma_3 + \delta_3 + 5 = 2\sigma_3 + 9;$

$f(v_{5,0}) = \sigma_3 + \delta_3 + 6 = 2\sigma_3 + 11;$

$f(v_{6,0}) = \sigma_3 + \delta_3 + 6 = 2\sigma_3 + 13$

$f(v_{1,\kappa}) = 2\kappa + 5 \qquad 1 \le \kappa \le \alpha_1$

$f(v_{2,\kappa}) = 2\sigma_1 + 2\kappa + 5 \qquad 1 \le \kappa \le \alpha_2$

$f(v_{3,\kappa}) = 2\sigma_2 + 2\kappa + 5 \qquad 1 \le \kappa \le \alpha_3$

$f(v_{4,\kappa}) = 2\kappa \qquad 1 \le \kappa \le \beta_1$

$f(v_{5,\kappa}) = 2\delta_1 + 2\kappa \qquad 1 \le \kappa \le \beta_2$

$f(v_{6,\kappa}) = 2\delta_2 + 2\kappa \qquad 1 \le \kappa \le \beta_3$

Here the relaxed label is $2\sigma_3 + 6$

The edge labels are given as follows:

The edge labels of $v_{1,0}v_{1,\kappa}$ is $\kappa + 3$ for $1 \le \kappa \le \alpha_1$ $(2, 3, ..., \alpha_1 + 1 = \sigma_1 + 1)$, $v_{2,0}v_{2,j}$ is $\sigma_1 + \kappa + 4$ for $1 \le \kappa \le \alpha_2$ $(\sigma_1 + 5, \sigma_1 + 6, ..., \sigma_1 + \alpha_2 + 4 = \sigma_2 + 4)$, $v_{3,0}v_{3,j}$ is $\sigma_2 + \kappa + 5$ for $1 \le \kappa \le \alpha_3$ $(\sigma_2 + 6, \sigma_2 + 7, ..., \sigma_2 + \alpha_2 + 5 = \sigma_3 + 5)$, $v_{4,0}v_{4,j}$ is $\sigma_3 + \kappa + 5$ for $1 \le \kappa \le \beta_1$ $(\sigma_3 + 6, \sigma_3 + 7, ..., \sigma_3 + \beta_1 + 5 = \sigma_3 + \delta_1 + 5)$, $v_{5,0}v_{5,\kappa}$ is $\sigma_3 + \delta_1 + \kappa + 6$ for $1 \le \kappa \le \beta_2$ $(\sigma_3 + \delta_1 + 7, \sigma_3 + \delta_1 + 8, ..., \sigma_3 + \delta_1 + (\beta_2) + 6 = \sigma_3 + \delta_2 + 6)$, $v_{6,0}v_{6,\kappa}$ is $\sigma_3 + \delta_2 + \kappa + 7$ for $1 \le \kappa \le \beta_3$ $(\sigma_3 + \delta_2 + 8, \sigma_3 + \delta_2 + 9, ..., \sigma_3 + \delta_2 + (\beta_3) + 7 = \sigma_3 + \delta_3 + 7 = 2\sigma_3 + 13)$

The edge labels are

$2, 3, ..., \sigma_1 + 1$

$\sigma_1 + 5, \sigma_1 + 6, ..., \sigma_2 + 4$

$\sigma_2 + 6, \sigma_2 + 7, ..., \sigma_3 + 5$

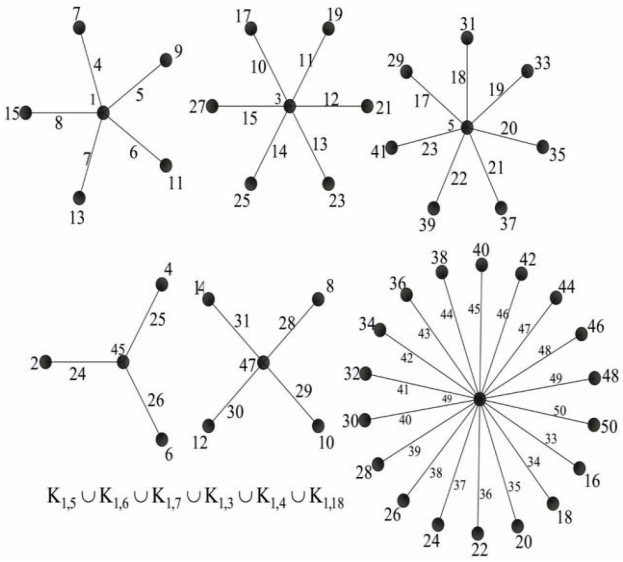
$\sigma_3 + 6, \sigma_3 + 7, ..., \sigma_3 + \beta_1 + 5 = \sigma_3 + \delta_1 + 5$

$\sigma_3 + \delta_1 + 7, \sigma_3 + \delta_1 + 8, ..., \sigma_3 + \delta_1 + (\beta_2) + 6 = \sigma_3 + \delta_2 + 6)$

$\sigma_3 + \delta_2 + 8, \sigma_3 + \delta_2 + 9, ..., \sigma_3 + \delta_2 + (\beta_3) + 7 = \sigma_3 + \delta_3 + 7 = 2\sigma_3 + 13)$

The images of the relaxed skolam edge function of the graph G are distinct. Hence G is a relaxed skolam mean graph.

Example:



IV. CONCLUSION

In this research article we concentrated mainly on the existence of relaxed skolam mean labeling of a 6 - star graph $G = K_{1,\alpha_1} \cup K_{1,\alpha_2} \cup K_{1,\alpha_3} \cup K_{1,\beta_1} \cup K_{1,\beta_2} \cup K_{1,\beta_3}$ with the condition $\beta_1 + \beta_2 + \beta_3 - \alpha_1 - \alpha_2 - \alpha_3 = 7$. Trial and error method is used to find the existence of the labeling function.

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ORIGINAL ARTICLE

பரிமேலழகரின் உரையில் புதிய சிந்தனைகள்

[PARIMĒLAḶAKARIṆ URAIYIL PUTIYA CINTAṆAIKAḶ]

NEW IDEAS IN PARIMALACHARI'S INTERPRETATION

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Abstract

This study is said to have complied and analysed the messages found in the Parimalazhar text in Thirukkural. In his speech rhetorical proverbs, noun types, verb illustration, wing illustration, differential elements, differential objects pointing, dictionary, new semantics, local care fire, abbreviated grammatical field. It also points out the guilt. The parables the new thinking the musical prowess the prose, the course of the next and the morals he used. This review article also highlights the nature of Parimalazhar text book. His text is completely different from others. Exploring each word in a new perspective is the foundation of dictionary art. His multifaceted, erudition and concentration serve as a guide for other commenstrators. This main purpose of their review article is exploring the new thinking of the superintendent.

Keywords: Wing, Plow, Keep, fold heart, line flower, Pirethu Molithal

ஆய்வுச் சாரம்

இந்த ஆய்வானது திருக்குறளில் பரிமேலழகர் உரையில் காணப்படும் செய்திகளை தொகுத்தும், பகுத்தும், விரித்தும் கூறப்பட்டுள்ளது. இவருடைய உரையில் சொல்லாராட்சி, பெயர் வகை சுட்டல், வினைவகை எடுத்துக்காட்டல், வேற்றுமை உருபுகளோடு வேற்றுமைப் பொருள்களைச் சுட்டல், அகராதிப்பொருள் விளக்கம் தருதல், வட்டார வழக்குச் சொற்கள், நயவுரை எடுத்துவைத்தல், புதிய நோக்கு, தீயும் தீயவையும், சுருங்கச் சொல்லி விளங்க வைத்தல், இலக்கண புலமையை குறப்பாக்களில் எடுத்துரைத்தல், உவமைகளை எடுத்தாளுதல், புதிய சிந்தனை, இசை நூற்புலமையை வெளிப்படுத்துதல், நயவுரை, உரைநெறிகள், ஆகியவற்றினை இங்கு சுட்டிக் காட்டப்படுகிறது. மேலும் இவ் ஆய்வுக் கட்டுரை பரிமேலழகரின் உரை நெறிகளின் தன்மைகளையும் எடுத்துக் காட்டுகின்றது. இவருடைய உரை மற்ற உரைகாரரிடமிருந்து முற்றிலும் மாறுபடுகின்றது. ஒவ்வொரு சொற்களும் புதிய நோக்கத்தில் ஆராய்ந்து அகராதி கலைக்கு அடித்தளமாக விளங்குகின்றது. இலக்கிய உரையில் இலக்கண புலமையை பதிவு செய்தமை போற்றுதற்குரியதாக அமைகிறது. இவரின் பன்நோக்கு புலமையும் கருத்துச் செறிவும் பிற உரையாசிரியருக்கு வழி காட்டுதலாய் அமைகின்றது. பரிமேலழகரின் புதிய சிந்தனைகளை சுட்டுவதே இவ் ஆய்வுக்கட்டுரையின் முதன்மை நோக்கமாக அமைகிறது.

கருச்சொற்கள்: சாரியை, ஊழ், வைத்து, மட நெஞ்சம், கோட்டுப்பூ பிறிது மொழிதல்

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முன்னுரை

ஈராயிரம் ஆண்டு பழமைமிக்கது. திருக்குறள் நூலின் உலகளாவிய புகழைப்போன்று, அதற்கு ஒப்பான புகழும் பெருமையும் உடைய உரை பரிமேலழகரின் உரையாகும். திருக்குறள் என்று என்னும் போதே பரிமேலழகரின் உரை நம் எண்ணத்தை ஆழ்ந்து சிந்திக்கச் செய்கிறது எனலாம். உரையாசிரியர்களுக்குள் இளவரசர் என்று போற்றத்தக்க பெருமையுடையவர் பரிமேலழகர் என்கிறார், செக்கோசஸ்லேகிய நாட்டுத்தமிழறிஞர் கபில் சுவலபில்.

Permelaker (13th -14th century) a Brahman from kanchipuram or from Madurai is considered by many the Prince of commentators. He is very much indebted to sanskrit, sources with enriched his vocabulary and style considerably. He has great Power of agrumention writing with forceful clarity in tense brief sentences" (Sarangapani, 1991)[1]

"பரிமேலழக றொவது உரையொன்றே வள்ளுவர்
நூலின் பெருமைகளைத் தக்கபடி அமைத்து அதன்
புகழை வளர்க்க வல்லதாய்யுள்ளது என்கிறார்."

பேராசிரியர், எஸ்.வையாபுரிப்பிள்ளை (Aravinthan, 1990)2

பரிமேலழகர் தம் காலத்தில் உள்ள தமிழ் இலக்கியம் அனைத்தையும் நுணுகிக் கற்று அவற்றின் கருத்துக்களை வடித்துக் கலைப்பண்பு கெழுமந் திருக்குறளை உரைவடிவில் அளித்துள்ள பரிமேலழகரது அருஞ்செயலின் பெருமை அளவிடங்கு அரியதாகவே உள்ளது. இத்தகைய சிறப்பிற்குரியதாக விளங்கும் இவரது உரையில் புதிய சிந்தனையை ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

கருத்துரை

பாலெல்லாம் நல்லாவின் பாலாமோ பாரிலுள்ள
நூலெல்லாம் வள்ளுவர் செய்நூலாமோ-நூலிற்
பரித்தவுரையெல்லாம் பரிமேலழகன் தெரித்தவுரை யாமோ தெளி
(பெருந்தொகை . 1543) (Kalpana.2009)[3]

எனப் பெருந்தொகை வெண்பா மூலம் இவரது சிறப்பினை அறியலாம். பரிமேலழகர் தமக்கு முன் தோன்றிய ஒன்பது உரைகளையும் கற்றார். பரிமேலழகருக்கு முற்பட்ட உரையாசிரியர் ஒவ்வொருவரிடம் ஒவ்வொரு சிறப்பு இயல்பு காணப்படுகின்றது. தொடக்கத்தில் எழுதும் விரிவுரை, இயல் பற்றிய ஆராய்ச்சியுரை, அதிகாரம் தோறும் எழுதும் முன்னுரை, அதிகாரம் வைப்பு பற்றிய விளக்கம், அதிகாரத்திற்குள் குறட்பாக்களைப் பொருள் தொடர்போடு தொகுத்து நோக்குதல் ஆகியவற்றைப் பரிமேலழகர் தமக்கு முற்பட்ட உரையாசிரியர்களிடமிருந்து பெற்றார்.

இத்தகைய சிறப்புக்குரியவரான இவரின் புதிய சிந்தனைகளை தம் உரையின் மூலம் சுட்டிக்காட்டியுள்ளார். திருக்குறள் உரையில் காணலாகும் அரிய செய்திகளையும், மொழிபாங்குகளையும், சொற்களை எடுத்தாளும் திறத்தினையும் பற்றி இக்கட்டுரையில் சுட்டிக்காட்டப்படுகிறது.

சொல்லராய்ச்சி

சொல்லாட்சித் திறனும் சொல்லாராய்ச்சி திறனும் ஒருவருடைய மொழிப் புலமையினைச் சுட்டிகாட்டுவதாகும். இலக்கிய இலக்கண நயங்களோடு ஆய்ந்து அவற்றின் பொருளை உணர்த்துகிறார் பரிமேலழகர். சிந்தனை ஆற்றலும் சிறப்பும் ஆய்வு நுட்பமும் இங்குச் சுட்டிக்காட்ட தக்கவையாக உள்ளது.

கெடுப்பதூஉம் கெட்டார்க்குச் சார்வாய் மற்றாங்கே
எடுப்பதூஉம் எல்லாம் மழை (குறள். 15)

இக்குறட்பாவிற்கு ஒவ்வொரு சொல்லினையும் ஆராய்கிறார்.

மற்று வினைமாற்றின் கண்வந்தது 'ஆங்கு' என்பது
மறுதலைத் தொழிலுவமத்தின் கண் வந்த
உவமைச்சொல், கேடும் ஆக்கமும் எய்துதற்
குரியர் மக்களாதலின் கெட்டார்க்கு என்றார்.
எல்லாம் என்றது அம்மக்களின் முயற்சி வேறு
பாடுகளை கெடுத்தல் நாம் பலவாதல் நோக்கி"
(Marieswai, P.A 2002)[4]

குறளில் வரும் சொற்களுக்கு இலக்கண குறிப்புகளும் அவற்றிற்குரிய வேறு சொற்களையும் சில குறப்பாக்களின் கூறுகிறார். (குறள்: 225) நந்து என்னும் தொழிற்பெயர் விகாரத்தில் நத்து என்றானது. பின் அம் என்னும் பகுதிப் பொருள் விகுதி பெற்று நத்தம் ஆயிற்று.

ஊழ்

இருவினைப்பயன் செய்தவனையே சென்றடைதற்கு ஏதுவாகிய நியதிகளை தம்முடைய உரையில் எடுத்துக் காட்டியுள்ளார். ஊழ், பால், முறை, உண்மை, தெய்வம், விதி, நியதி என்பவற்றை ஒருபொருட் கிளவியாக குறிப்பிடுகின்றார்.
தக்காங்கு ஒத்தாங்கு - ஒரு சொல் (குறள்.561) ஒரு வந்தம், ஒருதலை, ஏகாந்தம், ஒருபொருள், கிளவி (குறள். 563) இல், குடி, குலம் ஒருபொருள் (குறள்.951)

உறை

உறை என்பது முதனிலைத் தொழிற்பெயர் அவை ஆகுபெயராய் உறை தலைச்செய்யும் நாள்மேல் நின்றது. (குறள். 564)
ஒறுத்தாறும் - பொறுத்தாலும் என்பன ஒரு சொல் குறள் (653) கேண்மை, நட்பு – ஒரு பொருள் தினவு குறள் (782) தந்தும், எளியன் - ஒரு பொருட் பன்மொழி (குறள். 963)

பெயர் வகை சுட்டல்

யாகாவார் ஆயினும் நாகாக்க காவாக்கால்
சோகாப்பார் சொல்லிலுக்கப் பட்டு (குறள்: 127)

என்ற குறளில் 'யா'என்பது அஃறிணைப்பண்மை வினாப்பெயர் என்று கூறுகின்றார்.

கண்ணுள்ளார் காத லவரகாகக் கண்ணும்
எழுதேம் கரப்பாக்கு அறிந்து (குறள்:1127)
நெஞ்சத்தார் காதலவரகாக் வெய்துண்டல்
அஞ்சுதும் வேப்பாக்கு அறிந்து (குறள் 1128)

என்ற குறள்களில் வேப்பாக்கு, காப்பாக்கு முதலானவற்றை வினைப்பெயர் என்றும் பாகுபடுத்தி உரை எழுதுகின்றார்.

வினைவகை எடுத்துக்காட்டல்

பயனில்சொல் பாராட்டு வானை மகன் எனல்
மக்கட் பதடி எனல் (குறள்.196)

என்ற குறட்பாவில் 'அல்' விகுதியினை ஆய்ந்து நுட்பமாகக் கூறுவர்.

'அல்விகுதி வியங்கோள், முன் எதிர்மறை
யினும் பின் உடம்பாட்டினும் வந்தது

என்று விளக்கம் தருகிறார்.

சாரியை எடுத்துக்காட்டல்

செவியுணவிற் கேள்வி யுடையார் அவியுணவின்
ஆன்றோரோ டொப்பர் நிலத்து. (குறள்.413)

செவியான் உண்ணும் உணவு அல்வழிக்கண் வந்த இன்சாரியை ஆகும்.

வேற்றுமை உருபுகளோடு வேற்றுமைப் பொருட்களைச் சுட்டல்

வேற்றுமை உருபுகளைச் சுட்டுவதோடு அவை உணர்த்தும் பொருட்களையும் உரை கூறும்போதே கூறிச்செல்லும் மரபு இவரிடம் காணப்படுகிறது.

'அறத்தான் வருவதே இன்பம் மற்றெல்லாம்
புறத்த புகழும் இல' (குறள்.39)

என்ற குறள் உரையில், ஆனுருபு ஈண்டு உடனிகழச்சிக் கண் வந்தது' என்று உருபு உணர்த்தும் பொருளையும் சுட்டிக் கூறுகின்றார்.

அகராதிப் பொருள்கள் தருதல்

திருக்குறளின் உரையாசிரியர் பரிமேலழகர் அதற்கு உரை வகுக்கும் போது பொருளுக்கு ஏற்ற சொற்களைப் பயன்படுத்துகின்றார். தேவையற்ற சொற்களை அவர் எங்கும் பயன்படுத்தவில்லை. ஆற்றல் இல்லாத சொற்களை அவர் எங்கும் எடுத்தாளவில்லை. அதற்கு மாறாகப் பொருள் சொல்லும் சூழலுக்கு ஏற்ப சொற்களின் பொருளைச் சிறக்க எடுத்துக் கூறுகிறார்.

உடுக்கை இழிந்தவன் கைபோல ஆங்கே
இடுக்கண் களைஉதாம் நட்பு (குறள்:88)

என்ற குறளின் விளக்குதல், உடுக்கை இழந்தவன்' - என்ற தொடரில் அவையிடை ஆடை குலைந்தவனுக்கு' என்று கூறுகின்றார்.

துளங்காமை - திட்டமுடைமை (கு.668)
நிச்சநிரப்பு - நாடோறும் இரவான் வருந்தித் தன் வயிறு நிறைத்தல் (கு.532)
பெண்மை - அறியாமை (கு.503)
அறிவு முதிராமை (கு.844)
கணிச்சி - குந்தாலி (குறள்.1251)
பொய்க்காய்வு - நிலையில் வெறுப்பு (குறள்.1246)
எவ்வம் - ஒன்றானுக் தராமை குறள் (241)
மூத்தல் - அறிவானும் சலத்தானும் காலத்தானும் மூத்தல் (குறள்.441)
மிக்கவு வகை - பெருஞ்செல்வம், பேரின்பம், பெருமிதம்,
இவற்றினால் வருவது. (குறள்.531)
மடி கற்றல் - உடுத்தல் (கு.10237)
துலை - ஒப்பு (குறள்.1083)

வட்டார வழக்குச் சொற்கள்

எளிமையும் இனிமையும் நிறைந்த இவருடைய உரையில் பாண்டி நாட்டுப் பேச்சு வழக்கும் இடையிடையே சுட்டிக் காட்டுகின்றார். 'வைத்து' என்ற சொல்லை மிகுதியாக இங்கு கையாளுகின்றார்.

தாம் வலியராய் வைத்து மெலியார்க்கு உரிய கொடுத்தல் முதலிய மூன்றினைச் செய்தலும் மெலியராய் வைத்து வலியார்க்கு உரிய ஒறுத்தலைச் செய்தலுமாம் (குறள். 476 உரை).

இவையன்றித் தாம் மெலியனவாய் வைத்து'
(குறள். 474 உரை)

செவ்வி பெற மலர்ந்து வைத்தும் நூலைக் கற்று வைக்கும் (குறள்.650 உரை)
அதுமானந்தன் அறிந்து வைத்து (குறள்.318 உரை)
தாழந்த சாதிக்கண் பிறந்து வைத்தும் (குறள்.409 உரை)
அடைவுட எண்ணி வைத்து (குறள். 640 உரை)

வைத்து என்ற சொல் பாண்டிய நாட்டு மக்கள் தம்முடைய பேச்சு வழக்கில் அதிகம் பயன்படுத்துகின்றார்.

நயவுரை தருதல்

மருத்தவாயெல்லாம் பகடன்னான் உற்ற
இடுக்கண் இடர்பாடுடைத்து (குறள். 624)

பகடன்னான் என்பதற்குக் பரிமேலழகர் கூறும் உரை நயமும் நுட்பமும் பொருந்தியது. பகடு மருங்கு ஆற்றியும் மூக்கு ஊன்றியும் தாள் தவழ்ந்தும் அரிதின் உய்க்குமாறு போலத் தவழ்ந்தும் அரிதின் உய்க்குமாறு போலத் தன் மெய் வருத்தம் நோக்காது முயன்று உய்ப்பான் என்கிறார் பரிமேலழகர்,

தீயவை தீயினும் அஞ்சப்படும் (குறள்.202)

என்பதற்குப் பிறிதொரு காலத்தும் பிறிதொரு தேயத்தும், பிறிதோர் உடம்பினும் சென்று சுடுதல், நீக்கு இன்மையின் தீயினும் அஞ்சப்படுதாயிற்று என்கிறார்.

'விற்றுக்கோள் தக்க உடைத்து (குறள். 220)

என்ற குறளில் தன்னை விற்றுக் கொள்ளப்படுவதொரு பொருள் இல்லை. இன்றே இஃதாயின் அதுவும் செய்யப்படும் என்று பொருள் விளக்கம் தருகிறார். புகழ், பயத்தல் நோக்கி, இதனான் ஒப்புரவினால் கெடுவது கேடு அன்று என்பதை பதிவு செய்துள்ளார்.

உவப்பத் தலைக்கூடி உள்ளப்பிரிதல் (குறள்.394)

உள்ளப்பிரிதல் என்பதற்கு இனி இவரை யாம் எங்ஙனம் கூடுதும் என நினையுமாறு நீங்குதல்' எவ்வாறு கூடும் என்ற புதிய சிந்தனையை பதிவு செய்கிறார்.

'எப்பொருள் யார்யார் வாய்க் கேட்பினும் அப்பொருள்
மெய்ப்பொருள் காண்பதறிவு (குறள்.429)

என்ற குறள் விளக்கத்தில் குணங்கள் மூன்றும் மாறி மாறி வருதல் யாவர்க்கும் உண்மையின், உயர்ந்த பொருள் இழிந்தார் ஆயினும், இழித்த பொருள் உயர்ந்தோர் ஆயினும்

உறுதிப்பொருள் பகைவர் ஆயினும், கெடுபொருள் நட்டார் ஆயினும் ஒரோ வழிக் கேட்கப்படுதலான் 'எப்பொருள்' என்று கருதினார்.

நன்றறிவாரின் கயவர் திருவுடையார்
நெஞ்சத் தவலம் இலர் (குறள்.1072)

என்னும் குறளின் விளக்கத்தில் (புகழ், அறம், ஞானம்) ஆகியவற்றை 'அறிவார்' இவை செய்யா நின்றே மிகச் செய்யப் பெறுகின்றிலேம் என்றும், செய்கின்ற இவை தமக்கு இடையூறு வருங்கொள் என்றும், இவற்றின் மாறுதலையாய் பழிபாவம் அறியாமை என்பவற்றுள் யாது வினையுமோ என்றும், இவற்றார் கவலை எய்துவர், கயவர் அப்புகழ் முதலிய ஒழித்தும் பழி முதலிய செய்யா நின்றும் யாதும் கவலை உடையார் அல்லராகலான் திருவுடையார் எனக் குறிப்பால் இகழ்ந்தவாறு' இதனால் பழி முதலியவற்றிற்கு அஞ்சார் என்பது கூறப்பட்டது.

கேட்டார் பிணிக்கும் தகையவாய்க் கேளாரும்
வேப்ப மொழிதாம் சொல் (குறள்.643)

என்ற குறள் விளக்கத்தில் 'கேட்டார் கேளார்' என்பதற்கு 'நூல் கேட்டார் கேளாதார்' எனவும் வினவியார் வினவாதர் எனவும், தகையவாய் என்பதற்கு எல்லா தகுதியையுடையவாய் என்று உரைத்தார்.

தொடிநோக்கி மென்தோரும் நோக்கி அடிநோக்கி
அஃதான் வன் செய்தது (குறள்.1279)

என்ற குறளுக்குத் தம் புலமைத்திறன் அனைத்தும் வெளிப்படும் வகையில் பொருள் உரைத்த தன்மை வியப்புக்குரியதாய் அமைகிறது. அவர் பிரிய யான் ஈண்டு இருப்பின் இவை நில்லா எனத் தன் தொடியை நோக்கி, அதற்கு ஏதுவாக இவை மெலியும் எனத் தன் மென்தோள்களையும் நோக்கி பின் இவ்விரண்டும் நிகழாமல் நீர் நடந்து காத்தல் வேண்டும் எனத் தன் அடியையும் நோக்கி, அங்ஙனம் அவன் செய்த குறிப்பு உடன் போக்காய் இருந்தது.

புதிய நோக்கு

திருக்குறளில் உள்ள சில குறட்பாக்களுக்குப் பரிமேலழகர் "மாத்திரை முதலா அடி நிலை காறும் நோக்கி" நுண்பொருள் எழுதுகின்றார். குறட்பாவில் உள்ள ஒவ்வொரு சொல்லுக்கும் இவர் பொருளாழம் வாய்ந்த உரை கூறிச் சிறப்பிக்கின்றார்.

செவிக்கு உணவு இல்லாத போழ்து சிறிது
வயிற்றுக்கும் ஈயப்படும் (குறள்.412)

'சுவை மிகுதியும் பிற்பயத்தலும் உடைய கேள்வி உள்ள பொழுது வெறுக்கப்படுதலான், "இல்லாத போழ்து என்றும்" பெரியதாயன வழித்தேடல் துன்பமே அன்றி நோயும் காமமும் பெருகுதலான் 'சிறிது' என்றும் அதுதானும் பின் இருந்து கேட்டற் பொருட்டாகலான் ஈயப்படும் என்றும் கூறினார். ஈதல் வயிற்றது இழிவு தோன்ற நின்றது.

ஏதிலார் ஆரத்தமர் பசிப்பர் பேதை
பெருஞ் செல்வம் உற்றக்கடை (குறள்.837)

எல்லா நன்மையும் செய்து கோடற்கருவு என்பது தோறை 'பெருஞ்செல்வம்' என்றும், அதனைப்படைக்கும் ஆற்றல் இல்லாமை தோன்ற 'உற்றக்கடை' என்றும் எல்லாம் பெறுதல் தோன்ற 'ஆர' என்றும் உணவும் பொறாமை தோன்ற பசில்பார் என்றும் கூறுகிறார்.

சினமென்னுஞ் சேர்ந்தாரைக் கொல்லி இனமென்னும்
ஏமப் புனையைக் சுடும். (குறள்.306)

சேர்ந்தாரைக் கொல்லி என்பது ஏதுப்பெயர். தான் சேர்ந்த இடத்தைக் கொல்லும் தொழிலில் ஆகும். சேர்ந்தாரை என உயர்திணைப் பன்மைமேல் வைத்து நான்கு பாலையும் தம் கருத்தோடு கூடிய பொருளாற்றலால் விளக்குகின்றார். உலகத்து நெருப்புத்தான் சேர்ந்த இடத்தில் மட்டும் அல்ல, சேராத இடத்திலும் சுடும்.

அன்றறிவாம் என்னாது அறஞ்செய்க மற்றது
பொன்றுங்கால் பொன்றாத் துணை (குறள்.36)

இக்குறள் விளக்கத்தில் ஆழ்ந்த பொருளினை உள்ளடக்கிச் சொற்செறிவோடு அவர் எழுதும் திறன் வியப்பிற்குரியதாக உள்ளதும் 'அன்றறிவாம்' என்னாது அறஞ்செய்க" என்னும் தொடருக்கு, அறம் செய்வதற்கு இப்பொழுது என்ன அவசரம், பின்னர் பார்த்துக் கொள்வோம் என்பது மாந்தரின் இயல்பு, இதனை உணர்ந்த பரிமேலழகர்,

"யாம் இது பொழுது இளையமாதலின்"
இதற்கு ஞான்று செய்துமெனக்
கருதாது அறத்தினை காடோறுஞ் செய்க"

என்று விளக்கம் தருகிறார். (Marieswari, P.A. 2002)[5]

தீயும் தீயவையும்

தீய செயல்கள் தீமையினை விளைவிக்கும் தன்மை உடையது. தீயை விடத் தீயவை கொடியன வாகக் கருதி அஞ்சப்படும் என்பது வள்ளுவர் கருத்து.

தீயவை தீய பயத்தலால் தீயவை
தீயினும் அஞ்சப்படும் (குறள்.202)

இந்த குறட்பாவில் தீயைக் காட்டிலும் தீயவை கொடியவை என்பதனைப் பரிமேலழகர் மிக நுட்பமாக விளக்குகின்றார். தீயும் தீயவையும் செய்வன கொடியனவே ஆயினும் இரண்டிற்கும் உள்ள வேறுபாட்டினைப்புலப்படுத்தும் விதமாக அவருடைய சொல்லாட்சித் திறன் அமைந்துள்ளது.

'பிறிதொரு காலத்தும், பிறிதொரு தேயத்தும்
பிறிதோருடம்பினுஞ் சென்று கூடுதல் தீக்கு
இன்மையுள் தீயினும் அஞ்சப்படும்'.

என்கிறார் பரிமேலழகர்.

கண்ணும் புண்ணும்

வள்ளுவர் கற்றோரைக் கண்ணுடையார் என்றும் கல்லாதவரைப் புண்ணுடையார் என்றும் கூறினார். இவற்றினை வள்ளுவர் கூறுவதற்கு யாது காரணம் என்பதைப் பரிமேலழகர் நுணுகி ஆய்ந்து அதனை நுட்பவுரையாக்குகிறார். தாம் இருக்கும் இடமேயன்றிப் பிறிதோரிடத்தில் உள்ளவற்றையும் தாம் வாழ்ந்த காலத்தில் மட்டுமின்றி எல்லாக் காலங்களில் நடப்பனவற்றையும் உணர்ந்து அறிந்து கொள்ளும் ஆற்றலைத் தருவது கல்வி அறிவேயாகும். பரிமேலழகரின்

கருத்து நயத்தோடு இங்கு அவர்தம் உரையின் நடையழகும் உள்ளத்தைக் கொள்ளை கொள்வதாக அமைகிறது.

'தேயமிடையிட்டவற்றையும் காலமிடையிட்டவற்றையும் காணும் ஞானக் கண்ணுடைமையிற் கற்றாரைக் கண்ணுடையரென்ப என்றும், அஃதின்றி நோய் முதலியவற்றால் துன்பஞ் செய்யும் ஊனக் கண்ணேயுடைமையிற் கல்லாதவரைப் புண்ணுடையர் 'என்கிறார் பரிமேலழகர்.

மடநெஞ்சமும் காதலும்

காதாற் பிரிவால் என் நெஞ்சோடு புலந்து தலைவி கூறுகிறாள். எவ்வளவு முயற்சி செய்தும் என் காதலனை மறக்கக் கூடவில்லையே, காதலரை மறக்க இயலாத என்னோடு மட நெஞ்சினைத் சேர்ந்து மறக்கத் தகாததாகிய நாணத்தையும் மறந்து விட்டனே என வருந்துகிறாள்.

நாணும் மறந்தேன் அவர் மறக் கல்லா என்
மாணா மட நெஞ்சிற் பட்டு (குறள். 1297)

இக்குறளில் மடமை என்பதற்குப் பரிமேலழகர் தரும் நயவுரை நுட்பமும் திட்பமும் வாய்ந்தது. மடமை - கண்டவழி நினைந்து கண்டவழி மறத்தல்' இந்நயவுரையால் தலைவினுடைய உள இயல்பும் இனிது புலனாகிறது.

சுருங்க சொல்லி விளங்க வைத்தல்

குறட் செறிவைப் போலவே பரிமேலழகரது உரைச்செறிவும் சிறப்புடையது. சுருங்கச் சொல்லி விளங்க வைக்கும் திறன்மிக்கது அவரது உரைநடை சொல்லப்பட்ட கருத்தினை மீண்டும் உரைக்காது, முன்னரே உரைக்கப்பட்டன. என்று மட்டும் சுருங்கச் சொல்வது அவருடைய இயல்பு ஆகும்.

செய்தக்க அல்ல செயக்கெடும் செய்தக்க
செய்யாமை யானுங் கெடும்'

என்ற குறளின் விளக்கத்தில் 'செய்தக்கன வல்லன்' எவை எவை என்பதனை விளக்கிவிட்டு செய்தக்கன அவற்றின் மதலையாயின எனச் சுருக்கமாகவும் நுட்பமாகவும் உரைப்பார். செய்தக்கன அல்ல ஆவன பெரிய முயற்சியினவும் செய்தால் பயன் இவ்வனவும் அது சிறிதாயினும் ஐயமாயினவும், பின் துயர் வினைப்பனவும் என இவை, செய்யத்தக்கன ஆவன அவற்றின் மறுதலை ஆயின்' இவ்வாறே ஒரு சொல்லுக்கு மீண்டும் விளக்கம் பெற வேண்டிய நிலை ஏற்பட்டின் இது முன்னரே இவ்விடத்து உரைக்கப்பட்டது. என்பார்".

'ஆற்றின் அளவறிந்தீ அது பொருள்
போற்றி வழங்கும் நெறி" (குறள்.477)

என்னும் குறட்பாவில் உரையில்,

'ஈயும் நெறிமேல் இறைமாட்சியும், வகுத்தலும்
வல்லரசு என்புழி உரைத்தாய்"

அவர்தம் உரைநடைத்திறன் பல குறட்பாக்களின் உரைகளிலும்; சிறந்து விளங்குவது எண்ணுவதற்குரியதாக அமைகிறது.

ஒண்ணுதற் கோஓ உடைத்தே ஞாட்பினுள்
கண்ணாரும் உட்குமென் பீடு (குறள்.1088)

மருதர் என்பது அதிகாரத்தில் வந்தது. 'ஞாட்பினுள்' என்றதனால் பகைவராதல் பெற்றாம், என்றதனால் பகைவாராதல் பெற்றாம், பீடு என்ற பொறுமையாய் மனவலியும் காயவலியும் ஆகும். பெருமையும் நுதலது சிறுமையும் தோன்ற நின்றது. 'கழிந்தற்கு இரங்கலின் தற்புகழ்தல் என்றாயிற்று'.

கரும்புத் தின்பதற்குக் கூலி

'தாமின் புறுவ கலகின் புறக்கண்டு
காமுறுவர் கற்றறிந் தார்' (குறள். 399)

கல்வி ஒருவர் இன்புறுவதற்குக் காரணமாய் தோன்றிப் பிறர் மகிழ்த்திற்கும் காரணமாய் அமைகிறது. எனவே அச்சிறப்பு நோக்கியே கற்றோர் மீண்டும் மீண்டும் கல்வியை விரும்புகின்றனர், இதனைப் பரிமேலழகர் கரும்பு அயிற்றற்குக் கூலி போலத் தம் இன்புறுதற்கு உலகு இன்புறுதல் பிறவற்றான் இன்மையில் அதனையே காமுறுவர் என்று கூறினார்.

கோட்டுப்பூ

அறிவுடைமையின் பயன் உலகத்தைத் தழுவுகிறது. முன்னே மகிழ்ந்து விரிதலும் பின்னே வருந்திக் குவித்துமில்லாத இயல்பினது அறிவு.

'உலகந் தழீஇய தொட்பம் மலர்தலும்
கூம்பலு மில்லா தறிவு (குறள் எண்;.425)

என்னும் குறட்பாவில் வள்ளுவர் இதனைக் கூறுவர். வள்ளுவர் கருத்துக்கு விளக்கம் வரைந்த பரிமேலழகர், மலர்தலும் கூம்புதலுமில்லாத அறிவினுக்கு இயற்கை நெறியோடு இயைந்த காட்சி ஒன்றினை உவமையாக்குகிறார்.

நீர் நிலைகமிலுண்டாகும் பூக்கள் மலர்ந்துகுவி தலுமாகத் தாம் அழிகிற வரை நிலைமாறுதல்களைப் பெறும். அதனால் கோட்டுப்பூவோ ஒரு கால் மலர்ந்து மீண்டும் குவியாமலே அழிகிற வரை இருக்கும். மலர்; தலும் குவிதலுமான இருவகை நிலைகள் கோட்டுப் பூக்கனிடத்தில்லை, அறிவார்ந்த நட்பும் இத்தகைய இயல்பினதேயாம், எனவே தாம் பரிமேலழகர்,

அவரோடு கயப்பூபோல வேறுபடாது கோட்டுப் பூப்போல ஒரு நிலையே நட்பாயினான் எல்லா இன்பமும் எய்தும் ஆதலின் அதனை அறிவு என்றார்.

மலர்தலும் கூம்புதலுமில்லாத அறிவினுக்குக் கோட்டுப்பூவினை உவமையாக்குகின்றார் பரிமேலழகர்.

கோட்டுப்பூப்போல மலர்ந்து பிற்கூம்பாது
வெட்டதே வேட்டதா நட்பாட்சி தோட்ட
கயப்பூப்போல முன் மலர்ந்து பிற்கூம்பு வாரை
நயப்பாகும் நட்பாடுமில்
(நாலடி நானூறு:38) (Subramaniyan, S.V.2009)[6]

என்னும் நாலடிப்பாட்டின் உவமையோடு பரிமேலழகரின் உவமையாக அமைந்திருக்கிறது.

ஏர்லெழுத்துப் போல

கல்லாதவனுடைய அறிவுடைமை ஆரோவழி மிக நன்றாகயிருப்பினும் அறிவுடையார் அதனை அறிவின் பகுதியாக ஏற்றுக்கொள்ளமாட்டார் என்பதனை வள்ளுவர்,

கல்லாதா னொட்பங்கழி நன்றாயினும்
கொள்ளா அறிவுடையார் (குறள். 404)

என்னும் குறள் கூறுவர், கல்லாதவனுடைய அறிவுடைமைக்குச் சான்று தர விழைந்திடும் பரிமேலழகர், எண்ணி எண்ணி அவர் தரும் உவமை விளக்கம் வள்ளுவரின் கருத்திற்கு பொலிவை அளிப்பதாயத் திகழ்கிறது. ஆற்றின் கரையோரங்களில் நத்தை ஊர்ந்து செல்லும்போது கோடுகள் தோன்றும் அக்கோடுகள் சிலவேளைகளில் எழுத்துக்கள் போலவும் தோற்றந்தகுவன. ஆனால் அவற்றை எழுத்துக்கள் எனப்போற்றார் அறிவுடையார், அத்தகைய கல்லாதவனுடைய ஒப்பமும் என்பர் பரிமேலழகர்.

பசுமட்கலத்துள் நீர்

வஞ்சனை வழியால் பொருள் சேர்த்து அதனை காப்பாற்றுதல் என்பது பச்சை மண் கலத்துத் நீரைவிட்டுக் காப்பது போன்றதாகும். என்பர் வள்ளுவர். அறத்தையும் அரிய உவமையால் உணர்த்தும் வள்ளுவப் பெருந்தகையின் அழகிய இவ்வுமை முன்னர் இம்மூவகைக் குற்றங்களும் எரிந்துவிடும் என்பதை,

‘இடையறாத ஞான யோகஸ்களின் முன்னர்
இக்குற்றங்கள் மூன்றும் காட்டுத் முன்னர்
பஞ்சுத்துய் போலும்’

என்னும் உவமையில் விளக்குவர் பரிமேலழகரின் இவ்வுமை நயத்தால் ஞான யோகத்தின் வன்மையும், அவ்வலிமையின் முன்னர் மூன்று குற்றங்கள் அழிந்துபடுகின்ற எளிமையும் இனிது புலமைகின்றது.

இலக்கண புலமையை குறள்பாக்களில் எடுத்தாளுதல்

நலம் வேண்டின் நாணுடைமை வேண்டும் குலம்வேண்டின்
வேண்டும் யார்க்கும் பணிவு (குறள்.960)

நலம், புகழ், புண்ணியங்கள் வேண்டும் என்பது விதிப்பொருட்டாய்கின்றது. வினைப்படு தொகுதியின் உம்மை வேண்டும்’. (தொல்.சொல்.33) (Elampooranar, U.A 2005)[7]

அந்தணர் சான்றோர் அருந்தவத்தோல் தம்
முன்னோர் தந்தை தாய் என்றிவர்
(பு.வெ.பாடாண்.33) (Somasundaram. 2002)[8]

எல்லாரும் அடங்க யார்க்கும் என்றார்.

தொல்வரவும் தோலும் கெடுக்கும் தொகையாக
நல்குர வென்னும் நசை” (குறள். 1043)

தோலாவது 1. இழிமென் மொரியால் விழமியது துவறல் (தொல்.பொருள்.செய்.239) (Elampooranar,2002)[9]

உவமைகளில் புதிய சிந்தனை

ஊதியம் என்ப தொருவற்குப் பேதையார்
கேண்மை ஓர்இ விடல் (குறள்.797)

ஒருவனுக்கு வேறு என்று சொல்லப்படுவது அறிவிலாரோடு நட்புக் கொண்ட னாயின் அதனை ஒழிந்து அவரின் நீங்குதல் ஓதல், இதனை நாலடியாரோடு ஒப்பிட்டுக் கூறுகிறார்.

'வெறிகமழ் சந்தனமும், வேங்கையும் வேரு
மாறுபோல தீங்கு வருதலின் விடல்"
(நாலடி. 180) (Subramaniyan, 2009)[10]

அணியில் புதிய சிந்தனை

பிறிது மொழிதல் அணி

பரியது கடாங்கோட்ட தாயினும் யானை
வெரூஉம் புலிதாக் குறின் (குறள். 599)

பேருடம்பன் வலி மிகுதி கூறப்பட்டது. புலியின் மிக்க மெய்வலியும் கருவிச் சிறப்பும் உடைத்தாயினும் யானை ஊக்கமின்மையான் அஃதுடைய அதற்கு அஞ்சுமெறை இது. பகைவரின் மிக்க மெய்வலியும் கருவிச் சிறப்பும் உடையராயினும், அரசர் ஊக்கமிலராயின் அஃதுடைய அரசர்க்கு அஞ்சுவர் என்பது தோன்ற நின்றமையின், 'பிறிது மொழிதல்' என அணிச்சுட்டுவதோடு காரணத்தையும் விளக்கியுரைக்கின்ற தன்மை, புதிய நோக்காக அமைகிறது.

இசை நூற்புலமை வெளிப்படுத்தல்

'பண்ணென்னாம் பாடற்கியையின் றேற் கண்ணென்னாம்
கண்ணோட்ட மில்லாத கண். (குறள்.573)

இக்குறட்பாவின் விளக்கவுரையில், இசைப்புலமை தோன்ற உரையெழுதுகின்றார்.

பண்களாவன பாலையாழ் முதலிய நூற்று மூன்று பாடற்தொழில்களாவன யாழின் கண் வார்தல் முதலிய எட்டும், பண்ணல் முதலிய எட்டும் மிடற்றின் கண் எடுத்தல், படுத்தல், நலிதல், கம்பிதம், குடிலன் என்னும் ஐந்தும் பெரு வண்ணங்கள் எழுப்பதாறுமாம் இவற்றொருட இயையா வழிப் பண்ணாற் பயனில்லாதவாறு போல. கண்ணோட்டத்து இயையாத வழிக் கண்ணாற் பயனில்லை என்று உரை கூறுகின்றார்.

தொகுப்புரை

பரிமேலழகர் தமக்கு முன்னும் தம்முடைய காலத்திலும் இருந்த இலக்கிய இலக்கண நூல்களையெல்லாம் முழுதும் கற்றுணர்ந்த முதிர்ந்த அறிஞர் என்றே கூறலாம். தங்க அணிகலனில் வைரம் பதித்தாற்போன்று தம்முடைய உரையின் இடையே அவ்இலக்கிய உரைக்கு அழகும் அமைப்பும் சேர்த்த அருங்கலைஞர், கவிதை நடைகளையே உரைநடையாகத் தம் சொல்லாய்சித் திறத்தால் வடித்து கலைப்பண்பு கெழும் உரை உருவில் இன்றமிழ் இலக்கியமாகவே தந்துள்ளார். சங்க இலக்கியங்களிலும் பதிணென்கீழ்க்கணக்கு நூல்களிலும் காப்பியங்களிலும் இலக்கண நூல்களிலும் அவருக்கு இருந்த புலமை அறிவிடதற்குரியதாக அமைகிறது. தொல்காப்பியம் எடுத்தாளுதல், சங்க இலக்கியங்களுள், நற்றிணை, குறுந்தொகை, பதிற்றுப்பத்து, பரிபாடல், கலித்தொகை, அகநானூறு புறநானூறு, பட்டினப்பாலை, பொருநராற்றுப்படை, புறப்பொருள் வெண்பாமாலை, நலாடி நானூறு முதலிய நூல்களைத் தம் உரையில் எடுத்தாண்டு உள்ளார்.

முடிவுரை

பரிமேலழகர் மிகச்சிறந்த உரைகாரர்களுள் ஒருவராகத் திகழ்வதோடு, இவரது திருக்குறள் உரை இன்று வரை பலராலும் போற்றப்படுகின்ற, ஏற்றுக்கொள்ளுகின்ற, உரையாக விளங்குகிறது. இவரது உரை பல குறிக்கத் தகுந்த பண்புகளான உவமைச்சுட்டல், அணிநயன்கள் சுட்டல், இலக்கணக்குறிப்புகள் சுட்டல், பல நூற்களை எடுத்தாண்டு உரை விளக்கம் செய்தல், அவரது பல்துறை அறிவைப் புலப்படுத்துதல், பிற உரையாசிரியர்களிடமிருந்து வேறுபட்டும் தனித்தும் விளங்குதல் போன்ற பண்புகளோடு திகழ்வதைக் காணலாம். உரைகளின் வரலாற்றில் பரிமேலழகரின் இன்றளவும் முதன்மை பெறுகிறது. இன்னும இவரது உரைகள் குறித்து, ஆய்வு செய்யப்பட வேண்டும். ஆய்வுகளில் அரிய கருத்துக்களும் புதிய சிந்தனைகளையும் உலகளவில் பதிவு செய்யப்பட வேண்டும்.

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