

Estimation of cholesterol in different vegetable oils

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Introduction :-

Now-a-days people are very conscious about health. Different components make up their balanced diet. Vegetable oils plays important role in the diet. It's very important to choose the correct proper oil so as to include in our diet.

Cholesterol is an important factor which people should look upon while choosing the oil. 'Cholesterol', a lipid plays a vital role in physiological regulation of membrane fluidity and proper functioning of cells. It is also a major precursor in product of bile acids, steroid hormones as well as vitamin D. cholesterol is mainly of two types i.e good & bad cholesterol. Trans fats have adverse effects on blood lipid levels, increasing LDL(bad) cholesterol while decreasing HDL(good) cholesterol. Processing leads to increase in saturated fatty acids components of oils

Materials :-

Different types of oils produced from various oil seeds(oil palm, soya bean, rapeseed, etc) were purchased.

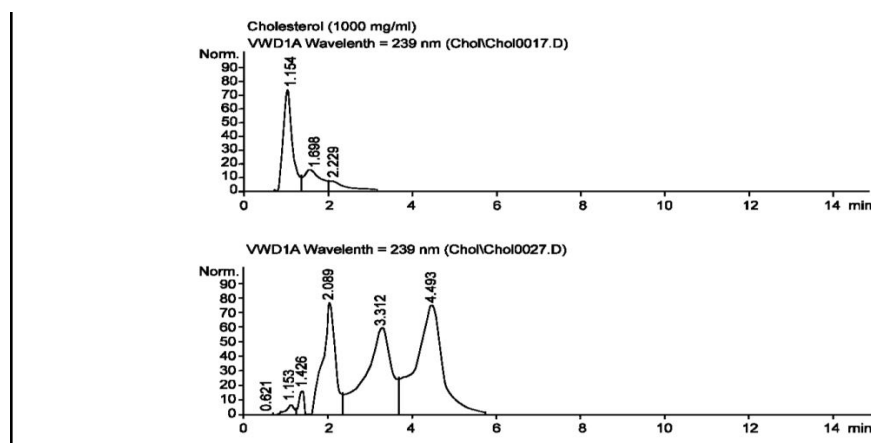
Determination of cholesterol content:-

The cholesterol content was detected using HPLC (High Performance Liquid Chromatography). The oil samples were first saponified with 3% ethanolic KOH and the resulting nonsaponifiable lipids were then dissolved in chloroform and the analysis was carried out immediately. The HPLC analysis was carried out using C18 column, acetonitrile/water(1:1), mobile phase & a UV detector at 239nm.

Observation table:-

Sr no:-	Sample name	Hplc (mg/ml)
1	Sesame	0.57
2	Groundnut	0.44
3	Soya bean	0.839
4	Olive	0.58
5	Palm	0.149

Graph:-



Result:-

The analytical data for cholesterol content of five oil samples from the retail markets are shown in the table. It is observed that among five samples '**soya bean oil**' contained highest amount of cholesterol. The another two methods to find the amount of cholesterol in oils are 'Ojiako&Akubugwo' and 'Liebermann-Burchard'. This two methods proposed that Sesame oil is having highest amount of cholesterol content but, our HPLC proved that Sesame oil contain moderate amount of cholesterol.

Conclusion:-

There are so many brands of vegetable oil in markets and many of them claim to be cholesterol free but, it is found that cholesterol is present in vegetable oils, although in small proportion. Due to increasing awareness on the health implications of high cholesterol in our diets, most people now prefer to purchase cholesterol free vegetable oils. Cholesterol has been known as the '**oily killer**' since the early-mid 60's, especially since several works then showed that it is the main cause of '**atherosclerotic lesions**' which are the major causes of coronary heart disease.

The lipid profile of oils is considered contributory to the risk of Cardiovascular diseases and some oil seeds possess a higher ability to lower the level of low density lipoproteins. The HPLC, due to its sensitivity confirms that there is really no cholesterol free oil in our market.

It is then left to the customer to make up their minds which oil satisfies their culinary needs.

Reference:-

- 1) www.sciencedirect.com
- 2) Advanced Google
- 3) Prof. Manasi Ghamande

Landuse changes in Surat city: A Retrospective View

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ABSTRACT:

The primary objective of this paper is to assessment of periodically changes in land use of Surat city located in Gujarat on the western part of India. Surat is the fastest developing city of India thus, it is necessary to have periodic assessment of land use change of developing urbanisation area as the result of urbanisation and expansion in Surat city.urbanization is a procedure majorly affecting area utilize qualities. Essentially, as an effect of urbanization the territory is seen with fast change in the land utilize character of rural land. By and large, the agrarian land is utilized for different advancement exercises like mechanical foundations, private states and other urban framework amid the procedure of urbanization. It is important to have a periodical appraisal of land utilize change for the creating urban region, which chooses the future development systems for the zone.This study demonstrate interaction between human and natural environment.it is also approach land use sustainability assessment for future growth of city.

Keywords - Landuse, Landuse Changes, Surat city, Urbanisation

1. Introduction:

Landuse meaning is as a conversion of land from natural environment put into a built environment. Any Landuse pattern is a result of the physical state of land having socio-economic effects and utilization affected by human activities. Land is a natural resource that significantly contributes to economy and growth to sustain all life. Theland is a valuable natural resource utilized for crops cultivation, population settlement, development of dams and reservoirs, and industries. Thiskind of permanent or cyclic interaction of a land is called as Landuse. Itis the utilization of a vacant land or a developed land for a clear purpose, at a given time. Urbanization is a process having a major impact on land use characteristics. Basically, as an impact of urbanization, the area is observed with rapid change in the land use of the agricultural land used for various development activities like industrial establishments, residential colonies, and other urban infrastructure during the process of urbanization. It is necessary to have a periodical assessment of land use change for the developing urban area, which helps to decide the future expansion strategies for the area. Surat is a city located on the western part of India in the state of Gujarat. It is one of the most dynamic cities of India with one of the fastest growth rates due to immigration from various part of Gujarat and other states of India.

2. Study Area Profile:

The city of Surat has a glorious history that dates back to 300 BC. The origin of the city can be traced to the old Hindu town of Suryapur during 1500 – 1520 A.D., which was later colonized by the Brigus or the king from Sauvira on the banks of river Tapi. In 1759, the British rules took its control from the Mughals till the beginning of the 20th century. The city is located on the river Tapi and has 6 km long coastal belt along the Arabian Sea. Due to these reasons, the city emerged as an important trade center and enjoyed prosperity through sea trade in the 16th, 17th and 18th centuries. Surat becomes the most important trade link between India and many other countries and was at the height of prosperity till the rise of Bombay port in the 17th and 18th

centuries. Surat was also a flourishing center for shipbuilding activities. The whole coast of Tapi from Athwalines to Dumas was specially meant for shipbuilders who were usually Rassis. After the rise of the port at Bombay, Surat faced a severe blow and its shipbuilding industry also declined. During the post-independence period, Surat has experienced considerable growth in industrial activities (especially textiles) along with trading activities. Consideration of these activities combined with residential development has resulted in considerable expansion of the city limits.

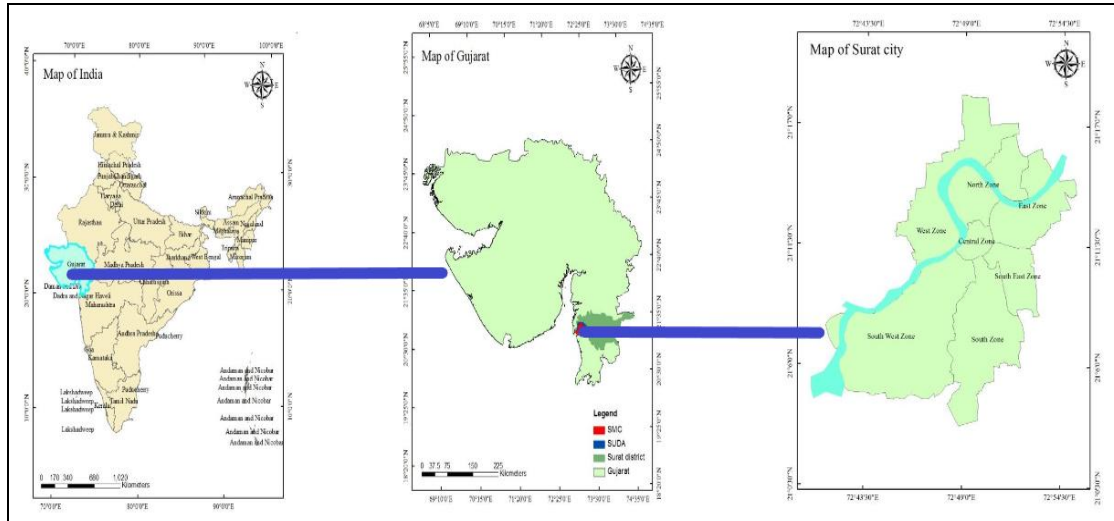


Fig.1 Location of Surat City

Surat - an important industrial hub and commercial centre of the country today boasts of a great historical and cultural heritage. The city of Surat has a glorious history that dates back to 300 BC. The history of Surat takes us back to the epic age of Mahabharata and Ramayana. According to mythological beliefs, Lord Krishna stopped in the city during his journey from Mathura to Dwarka. According to The Editors of Encyclopaedia Britannica (Last Updated 13.12.2013), the great explorer Hiuen Tsang referred the Surat City as 'Sowrata' and described it as a business town on the shore of Arabian Sea near Gujarat. The Brahmin Pundits of the 13th century called the city as 'Suryapur'.

The city is believed to have been founded by a Brahmin named Gopi, who built the Gopi Tank (water reservoir) in 1516 and named the area 'Surajpur' or 'Suryapur'. He developed and improved the city with the establishment of a place called 'Gopipura'. During this period Surat was described as a city of great trade. The city was divided into two parts, old and new. The old city pattern developed with the administrative centre at Chowk on a bank of river Tapti. Trade and business were concentrated in Chowk bazaar and Mulla chowk. The inner wall city was mostly developed as an administrative centre and as a specialized market

Surat is one of the cleanest cities of India and is also known by several other names like "the silk city", "the diamond city", "the green city", etc. It has the most vibrant present and an equally varied heritage of the past. It is the city where the British first land in India. The Dutch and the Portuguese also established their business centres in Surat, the remnants of which are still preserved in the modern-day Surat. In past, this was a glorious port with ships of more than 84 countries anchored in its harbour at any time. It is one of the most dynamic cities of India with rapid growth rate due to migration from various parts of Gujarat as well as other states of India. The Surat city is presently spread over an area of 326.515 sq. Km. With a periodical increase in municipal corporation boundary during last few decades. As a result of urbanization and expansion of municipal

corporation limit, the city has undergone a drastic change in land use character. The study has analysed the relationship between urban expansion and the loss of agricultural land because of increase in built-up area and other land use.

The recent population growth (55% of the total population are migrants) of the city is mainly due to the two main labour demanding industries i.e. textiles and diamond cutting & polishing. The population growth is due to the combination of natural growth and in-migration. Surat claims to be a zero-unemployment city, this has attracted rural migrants from within state (saurashtra, arid northern parts) and other states (especially maharashtra, uttarpradesh, and orissa). About 80 percent of the slum households in surat are migrants from rural areas of gujarat as well as from other states of the country. Moreover, with the large dependence on semi-skilled migrant workers to support the industrial labour demand, this trend is likely to continue.

With the establishment of the Surat urban development authority (SUDA), the development plan for its entire area (including SMC's area) was prepared under the gujarat town planning and urban development act, 1976. The planning area includes smc and 148 villages of choryasi, kamrej, palsana, and olpad talukas. The urban sprawl had already started growing outside of surat city limits, along with the radial roads and different corridors such as udhana corridor, dindoli corridor, rander – adajan – olpad corridor, nana – varachha –kamrej corridor etc.

3. Retrospective view of Surat City:

Between 1978 and 2004, the urbanized area has increased almost 3 times. The development that has taken place in the city over a period last 12 years is vivid. The existing land use prepared from the digitized base map is used to analyse the existing situation of development within SUDA Region. Development has mostly occurred in the SMC boundary. SUDA area excluding SMC area has experienced development in clusters with mostly residential and industrial development. The population growth of the city was 6 lakhs persons higher and faster than the anticipated growth. There is still land available for development within Residential zones through micro level planning mechanisms in the zones. This can be helpful to accommodate the future growth of the city.

In 2006, an extreme change in Surat City area took place with the addition of the SUDA area in to city area. The larger urban expansion is due to so many reasons like population growth, urbanization, industrial development etc. An expansion comprises an area of 214.23 sq. km. Having 4.43 Lakh population, 35 villages and census wards. The following table 6.2 shows the details of the city limit expansion and population from 1994 to 2011.

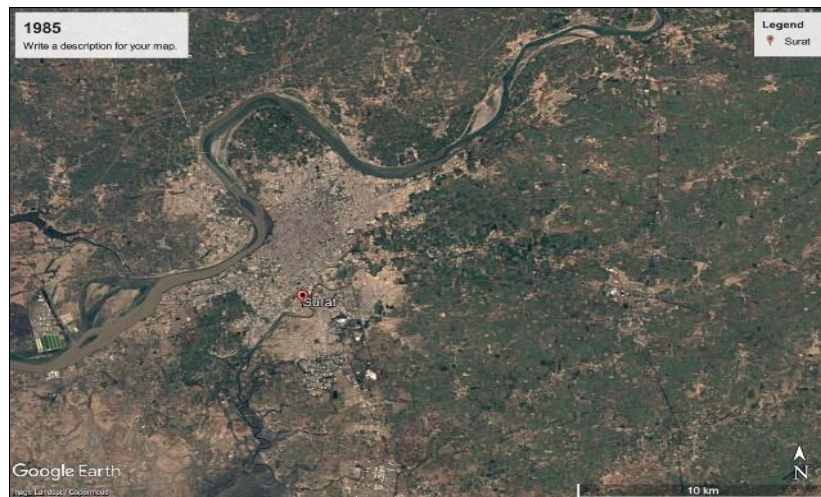


Fig.2 Landuse map of Surat in 1985

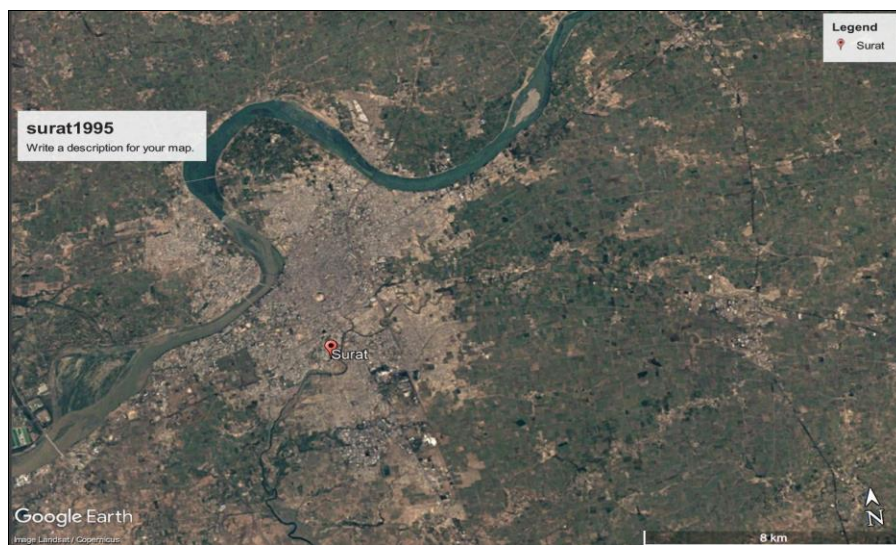


Fig.3 Landuse map of Surat in 1995

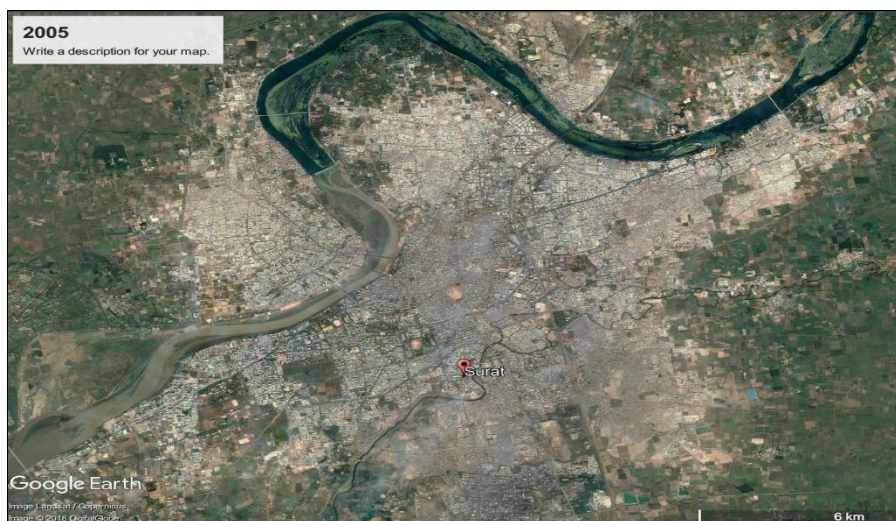


Fig.4 Landuse map of Surat in 2005



Fig.5 Landuse map of Surat in 2015

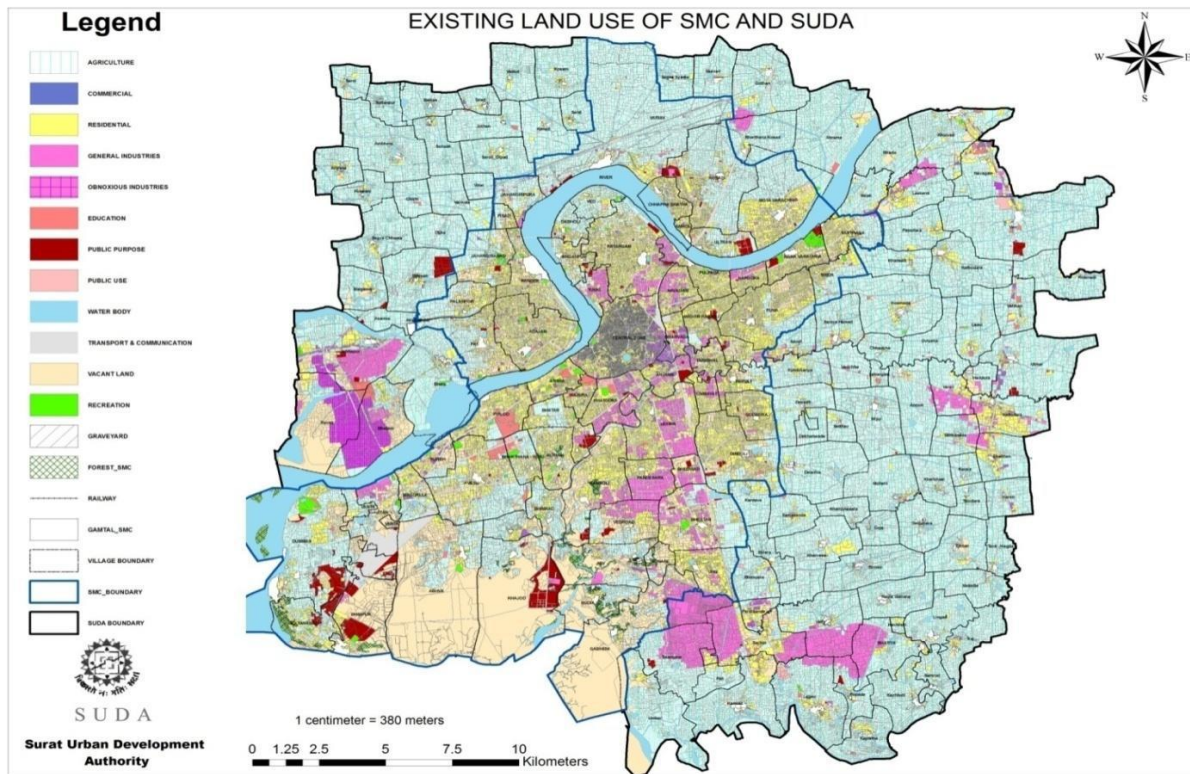


Fig.6 Existing Landuse map of Surat [2]

Land use maps which are represent a land use/land cover feature. Broadly, these features could be any of urban, built up, vacant land, vegetation and so on base. One can extract the features as per the requirement. Present study focusses mainly on four land use class i.e. built up, water body, vacant land, and vegetation cover. from 1985 to till the day today Urbanization is a process having a major impact on land use characteristics. Basically, as an impact of urbanization, the area is observed with rapid change in the land use of the agricultural land used for various development activities like industrial establishments, residential colonies, and other urban infrastructure during the process of urbanization. It is necessary to have a periodical assessment of land use change for the developing urban area, which helps to decide the future expansion strategies for the area.

The demand for infrastructure in the urban area is derived from the size of the settlement, distribution, and characteristic of population and activities over space. The characteristics such as population size, concentration area of the settlement, income levels vehicle ownership rates; urban economy in term of composition and location of employment, education, and entertainment activities are considered. These chapter present growth trends in the city population and the regional economy.

As the growth of the economy lags behind population growth this has resulted in less funds being available for development and maintenance of infrastructure. This means that without interventions to improve housing supply or contain migration to the city, the housing situation would considerably worsen in the coming years. Urbanization has nowadays become a global phenomenon; people trend to travel to urban areas for better lifestyle and for better living an obvious concern of urbanization is overcrowding and lack of housing. The more people move into cities, the more housing needs to be built and more services need to be maintained and made available. When spaces run out, prices go up and economic problems follow. Rapid urban population growth has led to increase in housing demand that cannot be met by exciting housing delivery system.

According to initial estimate of census 2011, made by Surat Municipal Corporation, the Surat city's population may well reach over 50.64 lakhs. This shows population growth of 76% in last one decade (since 2001) in Surat, possibly the fastest population growth in any city in India in this decade. Surat already has been declared the fastest growing city of India in various surveys in last decade. In 2001 Surat had population of 21,676 people per square kilometre. After Surat Municipal Corporation increased city's limit and added new areas, the city become three times larger than its previous area in last one decade.

4. Conclusion:

Urbanization is a process having a major impact on land use characteristics. Basically, as an impact of urbanization, the area is observed with rapid change in the land use. People from rural area trend to travel to Surat city for better lifestyle, job opportunity and for better living as concern of urbanization. the land use of Surat city is increasing Rapid urbanization is a reason for land use change in Surat city. Migration and population growth are the significant contributors to urbanization. Land use patterns have undergone a fundamental change due to rapid economic development in Surat city. During the period of 1998 to 2014, built up area has been increased by 52.08 sq. km. The expansion of urban area was on crop land, the latter area decreased from 161.18 sq. km.

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