CHAPTER I

INTRODUCTION
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Diabetes Mellitus or Madhumeha is a disease which was recognized in antiquity but history has been characterized by numerous cycles of discovery, neglect and rediscovery. Murlidhar et.al. (1996) have observed that "important progress has been made in understanding the progression of the pathogenesis of diabetes mellitus both (NIDDM) & (IDDM), non insulin dependent diabetes and insulin dependent diabetes. Major insight into the cell biology of the islets of langerhans has emerged. There have been important advances in the area of pancreas and islet transplantation. But even today, to understand metabolism and treatment of diabetes mellitus, requires a demanding spectrum of knowledge about chemical, immunological, vascular and endocrine factors in human.

In the last few years there have been revolutionary changes in the therapy of diabetes mellitus. Drugs like insulin sulphonylureas, biguanides have definitely helped in controlling the blood sugar levels and improving the quality of life. But none of them have been unequivocally successful in maintaining englycaemia and in avoiding late complications of diabetes. About 15 to 20% of patients with newly
diagnosed NIDDM have little or no response to sulphonylureas and with each year of treatment, about 3 to 5% of patients who have achieved better or acceptable glycaemia control lose their responsiveness. Biguanides therapy is associated with lactic acidosis and toxicities like gastrointestinal problems, skin rashes, hematological disorders, water retention, hyponatraemia and several others."

New drugs are being tried to reduce glucose absorption from the gut and to prevent other diabetic complications. Inspite of all the advances in therapeutics, diabetes still remains a major cause of morbidity and mortality in the world.

In the light of above, there was a need for herbomineral preparation for the treatment of diabetes mellitus. Ancient Indian medicine mentions various indigenous plants and mineral preparations for the treatment of diabetes mellitus. There are different combinations of these medicinal extracts which can be given orally and for prolonged duration of time. There is no disease which provokes greater thought on diet than diabetes. Many unfortunate diabetics, dreading a strict dietetic regimen for the rest of their lives, try pills, herbs and infusions, strongly recommended by friends and relatives, who claim to have tried them and appear symptom-free without a diet. These specifics are claimed to be so potent and effective that urine or blood examinations for sugar are declared unnecessary. This happy state continues till suddenly they wake up one night with a complication of diabetes like a paralytic stroke, coronary heart disease or blindness. Others may not wake up, and pass into Coma.
Diabetes Mellitus (diabetes = flow through, mel = honey) is a chronic metabolic disorder, with a strong hereditary basis, associated with high blood sugar and usually with passage of sugar in the urine.

Diabetes is no longer a dreaded disease. A well-managed diabetic has a good expectancy of life. Neglect of the condition produces irreparable damage to the arteries during the course of years. Most of the complications of diabetes are due to gradual and irreversible capillary and nerve damage, which may ultimately lead to gangrene, paralysis, coronary insufficiency, kidney disease or blindness. Diet is the sheet-anchor of treatment in obese elderly diabetics and a useful supplement to insulin therapy in younger ones.

Unfortunately, diabetes in the earlier stages can be symptom less and patients tend to neglect the disease. Cases are usually discovered at a routine life insurance examination, or a physical check up in industry or when urine is examined pre-operatively or for ailments like sciatica, boils or carbuncles.

Raghuram et.al (2000) have described that "persons with diabetes have too much sugar in blood and urine. However, there is no need to worry, since diabetes can be kept under control with certain changes in the life style, food intake, exercise and regular intake of prescribed medicines. Even though more than 30 million people all over the world are affected with diabetes, not all are well informed about the nature of their disease."
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**Definition:**

Cells in the body need glucose (sugar) for making energy required for daily life. The food we eat turns to glucose (sugar) after digestion. Glucose enters the blood stream to reach different body cells. Insulin is like a key which opens the body cell door to allow glucose to enter. In the absence of enough insulin or due to defective insulin glucose cannot enter the cells and remains in the blood streams in high amounts. This condition is called diabetes.

**Sahay (2002)** has stated that W.H.O. defined that "Diabetes Mellitus is a syndrome characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from either or absolute or relative deficiency of insulin secretion and/or action."

This chronic hyperglycemia of diabetes is associated with long term damage, dysfunction and failure of various organs especially the eyes, kidneys, nerves, heart and blood vessels."

Diabetes is not a mild disease. Initially tablets can control diabetes but over a period of time tablets fail and insulin is necessary for good control.

**What is Diabetes?**

**Raghuram et.al. (2000)** have described that "we require energy for all our daily activities. This energy is mainly derived from Carbohydrates. When we eat carbohydrates through our diet, our blood sugar increases. If it rises beyond 180 mg./100 ml., sugar is excreted in the urine. Normally insulin a hormone produced by beta-cells of the
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pancreas, helps to utilize sugar for the production of energy by the body. It helps in glucose uptake by the cells, prevents a rise in blood sugar and maintains its level within certain normal limits. In diabetes, either the pancreas can not produce enough insulin or what is produced is not effective in controlling the blood sugar. Lack of effective insulin results in inadequate utilization and consequent rise in blood sugar. This affects the metabolism of several nutrients, with varying ill-effects. However, with modern management patients can remain symptom free and maintain good health."

In diabetes, there is too much sugar in blood and urine due to lack of effective insulin. Diabetics can lead a normal life provided they make certain changes in their life style, particularly in their diet.

History:

In *Diabetes Forum.htm* (2005) it is reported that this disease has apparently plagued men for a very long time, since the writings from the earliest civilization (Asia minor, China, Egypt, and India) referred to boils and infections, excessive thirst, loss of weight, and the passing of large quantities of honeysweet urine which often drew ants and flies (the term diabetic is derived from the Greek word meaning siphon, or the passing through of water. While mellitus is Latin for honeysweet). For example, the Papyrus Ebers, an Egyptian document dated about 1550 B.C. recommended that those afflicted with the malady go on a diet of bear, fruits, grains, and honey, which was reputed to stifle the excessive urination. Indian writings from the same era attributed the disease to overindulgence in food and drink.
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Ayurveda:

Diabetopedia.com (2005) in its report has described that classically Ayurveda is a very ancient form of Indian Therapy practiced from the time of Charaka (Vide the treatise Caraka Samhita) 4th Century A.D. It incorporates Eight Aspects (Astanga Ayurveda) of treatment. Ayurvedic therapies are basically not primarily drug oriented. Drug treatment constitutes only one part of it. Charaka's exposition of Ayurvedic Therapy with multi-pronged approaches (again drugs, diet and lifestyle applications) were aimed at attaining a disease free state by promoting the general resistance of the body (thereby disease prevention), gaining youthfulness (hence longevity), improving physical strength and vitality as well as memory and intelligence. Ayurvedic treatment is therefore not a curative for diabetes mellitus, but may prove useful as adjunct therapy and enhancing conventional scientific treatment used in the condition. There are many Ayurvedic products in the market claiming cure for diabetes, but they have no scientific basis. When used as therapy enhancers they may prove useful in type 2 diabetes mellitus (NIDDM) when faced with secondary failure of oral hypoglycemic agents (OHA), thereby salvaging about 50% of the cases from resorting to insulin treatment.

Global Picture - Epidemiology:

The prevalence of type 2 diabetes is increasing all over the world particularly in the developing countries. It has emerged as a major public health problem in our country.
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IDF.htm (2003) has pointed out that there are currently more than 177 million people with diabetes worldwide. WHO figures estimate that this will rise to 300 million by 2025.

In 2000, the five countries with the largest numbers of persons with diabetes were India (32.7 million), China (22.6 million), the United States (25.3 million), Pakistan (8.8 million) and Japan (7.1 million).

In 2000, the five countries with the highest diabetes prevalence in the adult population were Papua New Guinea (15.5%), Mauritius (15.0%), Bahrain (14.8%), Mexico (14.2%) and Trinidad & Tobago (14.1%).

At least 50% of all people with diabetes are unaware of their condition. In some countries this figure may rise to 80%. Diabetes is the fourth main cause of death in most developed countries.

Sahay (2002) has reported that "the WHO estimated that there were 19.4 Million persons with diabetes in India in 1995 and that this number is likely to be 57.2 million in 2025. India has the distinction of having the largest number of diabetes in the world."

Studies in 1980 showed higher prevalence rates of type 2 diabetes among migrant Indians in several countries, compared with their native populations and other migrant ethnic groups.

Current prevalence rates are 11-12% in the urban Indian adult population. There is evidence that the prevalence of type 2 diabetes is increasing in rural population also.

Sahay K. & Sahay B. K.htm (2002) have reported that "India has the largest diabetic population in the world. Change in eating habits, increasing weight and decreased physical activity are major
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factors leading to increased incidence of type 2 diabetes. Obesity is the most important modifiable risk factor. Smoking is an independent risk factor for type 2 diabetes mellitus." Diet and exercise are primary therapeutic options for its management. Dietary management should not only aim to achieve glycaemic control but to normalize dyslipidaemia. Smoking cessation reduces the risk of morbidity and mortality in CAD. Exercise improves the conditions of a diabetic patient. Exercise includes yoga practices which have a role to play in the prevention of type 2 diabetes.

Prevalence:

Hardy R. & Bell A. (2005) have noted that "diabetes, particularly type 2 diabetes, is growing at alarming rates in the United States and in the most industrialized country. Factors shown to increase the risk of type 2 diabetes are ethnicity (African American Hispanics, and American Indians), physically inactivity, age, obesity, and family history. Diabetes dramatically increases the risk of premature mortality and morbidity from complications such as cardiovascular disease (CVD), end stage renal disease (ESRD), lower extremity amputation (LEA), and visual impairment. These complications have been shown to be prevented or delayed through medical management and self care behaviors such as dietary compliance, regular physical activity, foot self care, and blood glucose monitoring.

The most recent estimates of diabetes prevalence (2002) indicate that 18 million Americans > 20 years of age have diabetes. This represents 8.7% of all people in this age group." Prevalence rates of
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diabetes are essentially identical for men and women, although the absolute numbers of people with diabetes varies somewhat by sex (8.7 million men, 9.3 million women).

Sahay (2002) has stated that "prevalence of type 2 diabetes mellitus in India is showing a progressively upward trend. The study published by Indian Council of Medical Research (ICMR) in 1972 reported a prevalence of 2.3% which has risen to 12.1% in the year 2000 in the urban population. The WHO has also projected this rising trend of diabetes. The prevalence in India is expected to rise from 19.4 million in the year 1995 to 57.2 million in the year 2025."

Genetic predisposition, inherent ethnicity, increased waist to hip ratio with / without obesity, urbanization, migration and life style changes contributes to this rise in Indians. Moreover, type 2 diabetes in Indian populations may have an onset at the younger age. It is projected that equal number of diabetics are undetected for a long time and hence may present with microvascular and macrovascular complications at the time of diagnosis.

Managing patients with diabetes effectively requires a great deal of time, effort and patience. The professional education that increases awareness of the importance of diabetes management is valuable in reducing and preventing complication of diabetes.

Diabetes is a serious common, costly and controllable disease. Controlling diabetes is easier and cheaper than managing its complication.
Classification:

An international expert committee, working under the sponsorship of the American Diabetes Association was established in May, 1995 to review the classification and diagnosis of diabetes mellitus based on etiology. The new classification was published in July, 1997.

Etiological Classification of Diabetes Mellitus:

Type 1 Diabetes (absolute insulin deficiency)

Immune mediated

Idiopathic

Type 2 Diabetes

(predominantly insulin resistance with relative insulin deficiency)

Other Specific Types

Gestational Diabetes Mellitus (GDM)

Type 1 Diabetes:

Insulin Dependent Diabetes (IDDM):

Raghuram et.al. (2000) have described the types of diabetes that usually this type of diabetes affects the children or adolescents. There is little or no production of insulin and as a result, such individual require daily insulin injections. It is rapid in onset. The symptoms gets severe, when insulin injections are discontinued. The diabetic develops a life threatening metabolic complication refer to a ketoacidosis.
Type 2 Diabetes:

Non Insulin Dependent Diabetes (NIDDM):

This usually affects overweight or obese adults. The insulin production may be normal or even high. However, the insulin produced is not as affective as normal insulin. The symptoms of the disease are gradual in onset. In subject with this type of diabetes, diet, exercise, or oral anti diabetic drugs may be enough to control the raised blood sugar.

Type 2 diabetes amongst Indians occurs at a younger age, the age at diagnosis being a decade earlier than in the West. Body Mass Index is lower by 4 kg/m\(^2\) for males and 6 kg/m\(^2\) for females. However, abdominal obesity with increased waist to hip ratio is more common. Strong familiar aggregation of the disease with high prevalence among first degree relatives and vertical transmission through two or more generations is also noted. The earlier age of onset, delayed diagnosis and improper care lead to an increase in morbidity and mortality resulting in loss of productivity.

Other Types:

Recently a third type of malnutrition-related diabetes mellitus (MRDM) has been characterized as a separate entity.

This type of diabetes is mainly seen in some tropical countries like India, and it occurs in young people between 15 and 30 years of age. People with MRDM are lean and under nourished. In this type of diabetes the pancreas fails to produce adequate insulin. As a result this diabetes requires insulin. In contrast to type 1 diabetes, these patients generally do not develop ketoacidosis, when insulin injections are
discontinued. In a few subjects secondary diabetes may result from other hormonal disorders.

**Impaired Glucose Tolerance (IGT):**

When the glycaemic response (rise in blood glucose) after the administration of a 75 g of oral glucose load is intermediate between normal and diabetic, that condition is described as impaired glucose tolerance. Individuals with impaired glucose tolerance are generally free from symptoms of diabetes. However they have the potential to develop the diabetes at a later stage, they should be more careful in their diet and avoid obesity. In addition they should undertake regular exercise.

**Gestational Diabetes:**

Diabetes developed during pregnancy is described as gestational diabetes. It occurs in about 1% of pregnant women. Gestational diabetes increases the diabetes related complications during pregnancy, and also the subsequent development of real diabetes after the delivery. Pregnant women who have family history of diabetes or bad obstetric history should be screened for gestational diabetes employing the glucose load test.
Risk Factor:

Although the actual cause is not clear, the following factors have been shown to increase the risk for diabetes.

- Hereditary factor
- Obesity
- Sedentary life
- Aging

Mukharji (2002) has indicated that "type 2 diabetes mellitus characterized by chronic hyperglycemia and its major long term consequence of organ damage is increasing all over the world and its rapidly emerging as major public health problem. According to WHO report the prevalence of diabetes in adults worldwide will rise from 4% in 1995 to 5.4% and the number will rise from 135 million in 1995 to 300 million by the year 2025. Epidemiological data in India shows the same upward trend from 33 million diabetics in 2000 to 57 million in 2025. India has thus become the Diabetic Capital of the World. The factors for this steep rise include genetic predisposition, urbanization, ethnicity, insulin resistance and central obesity."

Type 2 diabetes with early age onset carries higher risk of heart attacks, 4-5 times for stroke, 5 times for nephropathy and even higher for peripheral vascular disease. While hypertension is observed in 38% of type 2 DM the prevalence of retinopathy in 23.7%, coronary artery disease in 11.4%, peripheral nephropathy in 27.5% and nephropathy in 5.5% are observed by Ramchandran at Chennai.

Diabetes Forum.http (2005) has reported that many doctors have observed that diabetes seems to be more prevalent in certain
families than others, so they have concluded that the tendency to develop the disease is an inherited trait. Support for this theory is found in studies of twins who originate from a single, fertilized egg cell (identical or monozygotic twins). Identical twins have identical genes, so they should also have the same susceptibility to hereditary diseases; whereas fraternal twins (which originate from two separate, fertilized eggs) have no greater similarity in their heredity than brothers or sisters born at different times. A study revealed that 70% of the identical twins of known diabetics were diabetic. The fact that fewer than 100% of the identical twins of diabetics had the disease showed that environmental factors also played a role in its development.

The strong evidence for hereditary susceptibility to diabetes leads many health professionals to believe that for diabetes-prone families, the potential to become diabetic is present in all members at the time of their birth. Whether or not they develop clinical signs of the disease depends upon their exposure to factors which may precipitate or aggravate the disease. If this concept is correct, then heredity is the single cause of diabetes.

Preventive Measures for Controlling Diabetes

Diet:

*Diabetes Forum.htm (2005)* reported that the three basic types of diets which are currently being prescribed for diabetics are:

A moderately low-carbohydrate diet which restricts mainly simple sugars and alcohol, for those who have high blood levels of triglycerides (Type IV Hyperlipido-proteinemia).
The most commonly used diabetic diet which has from 45 to 55% of its calories supplied by carbohydrate. A recently tested high-carbohydrate, low-fat diet for people who have high blood levels of cholesterol and/or other fats (Type II and other types of Hyperlipoproteinemia), is recommended.

Exercise:

Physical activity may be a form of therapy for the diabetic (since it may make it easier to lose weight, and it may also lower the blood levels of both fats and glucose), or, it may cause such problems as low blood sugar. Therefore, it is worthwhile for diabetics to try and anticipate in advance and change in their customary level of activity. Although it is well known that increase in energy expenditures by diabetics usually lowers their requirements for insulin. Most doctors prefer that patients who are dependent upon such injections adjust their food intake to correspond with changes in activity, rather than change their doses of insulin. If such increased energy expenditure becomes a regular part of a diabetics life, then the doctor will explain how to change the dose of insulin.

Aarogya.com (2005) has studied that yoga claims to be beneficial for many diseases and problems. But there is generally a lack of studies and research which shows that yoga can actually help in certain diseases. Even the few studies which have been done have not been sufficient in the public eye, and there is a need to highlight what the studies are showing about how different systems can help in different situation.
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The Yoga Institute, Santa Cruz has been actively involved in studying the actual effects of yoga. Since 1987 they have been holding camps for people with particular types of ailments and actually keeping records on how their advice, exercise regimes, diet advice helps in the ailment. These short-term 2-day camps, which give a holistic approach, have had a great effect on those who participated.

The Yoga Institute emphasise a change in values through changed attitudes and new habits culminating in a new healthy lifestyle as the management technique in diabetes. The Yoga Plan for Total Health is a carefully conceived 10-point training program, which includes:

➢ Helping to establish health routines through changes in diet, sleep and posture.

➢ Self care through urine testing.

➢ Understanding emotional implications of the disease and how to overcome anxiety and apathy, and the consequent swings in blood sugar levels.

➢ How to eat, what to eat, when to eat and why not to eat certain foods.

➢ Exercising and stretching the spine and various muscles of the body through yogic practice.

➢ Yogic breathing and concentration through Asanas, Pranayamas, Kriyas such as Trataka, Candle Gazing, Jalneti and Kapalbhati.

➢ Yogic relaxation mainly Savasana, Nispandbhava and Dradhasana as destressors.
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➢ Acceptance of Yogic Philosophy and way of life, with group discussions, sharing session and Karma Yoga.

➢ A period of Mauna (silence) for stock taking and reflection, and Abhyasa to put learning into practice

Follows ups revealed that those who kept up their practice and changed their basic attitudes towards life show a marked and consistent improvement in their health status.

Mukharji & Sahay (2002) have described that despite the research and the availability of better treatment modalities, the morbidity and mortality is increasing and is a matter of concern.

The task of rendering quality care to our diabetic patients is stupendous and challenging. We do not have a national diabetes care programme. A proper programme will yield rich dividends in terms of prevention of its long term complications and cutting down the morbidity and mortality in diabetics. Our goal should be to preserve the health of the diabetic.

Screening:

In view of the rising trend in the prevalence of diabetes and associated morbidities, it is imperative to screen high risk groups. Studies by ICMR and UKPDS have shown established complications even at the time of diagnosis emphasizing the importance of screening.
Population Screening:

Health check up schemes
Insurance screening
Employment check up schemes
Diabetic detection camps

Diabetes is a serious common, costly and controllable disease. Controlling diabetes is easier and cheaper than managing its complication.

Incredible India.com (2005) has stated that, from the ancient times Aurangabad has been a place of great importance due to its location on the famous Silk Route that traversed all of Asia to reach Europe. Textiles, embroidered finery and various kind of beads made in nearby Paithan were exported to the markets in India and abroad (Egypt, Japan, US & Britain etc.).

Under royal dynasties such as the Satavahanas, Vakatakas, Chalukyas and Rashtrakutas, Aurangabad developed as a centre of culture gave birth to or provided inspiration for great poets, saints and philosophers like Dyaneshwar, Eknath and Ramdas, Wali and Siraj etc.

Aurangabad’s strategic position in the Deccan earned it the name of “Khidki” meaning window, serving as it did, as an opening throughout India could look into the Deccan. Mohammed-Bin-Tughlaq the (Mad King) was so impressed by the topography of the Deogiri mountain that he forsook Delhi and moved renaming it Daulatabad.

Thus, Aurangabad enjoys the rare distinction of being the only city apart from Delhi to have served as the capital. Finally, Aurangabad became the seat of the last of the great Moghuls Aurangzeb as he fought to block the resurgent Maratha power.
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India's third largest and second populous state, Maharashtra lies on the west coast of India. Its history goes back nearly 2500 years. Numerous Budhist and Hindu rock cut caves lie scattered around the land. Mumbai its capital city is the largest film industry and largest textile market in the world. About 400 Kmtrs.east of Mumbai is Aurangabad.
Map of Aurangabad District (2006) Location & Administrative Units

Aurangabad was an important seat of Moghul empire during the Moghal rule in India. The town holds a number of Moghual architectural marvels making it an important historical destination in Maharashtra. The town is situated on the bank of the river Kham. The medieval monuments and cultural heritage, the silk and cotton textile and its proximity to the famous world heritage sites of Ajanta and Ellora attract a good number of visitors towards it every year. Though the city looks calm and quiet with not much humdrum on the streets, it is an industrialized, competitive city making its own mark on the tourist and the industrial map of India.

Aurangabad is a convenient base for seeing India’s timeless art at the renowned Ajanta and Ellora. Tourist from all over the world flock here to see the wonderful art. These caves were carved between second century B.C. and 8th century A.D. During this period while rest of the world was in dark ages India had evolved in art and imagination.

Aurangabad City info.com (2005) has provided information that Aurangabad city was founded in 1610, on the site of a village, Khirki by Malik Ambar - the Prime Minister of Murtaza Nizam Shah II.

When Fateh Khan, Malik Ambar’s son turned successor in 1626, he gave the city the name (Fatehpur). Later in 1653, when Prince Aurangzeb became viceroy of the Deccan, he made the city his capital and called it Aurangabad.

Aurangabad became the residence of the Mughal Emperor Aurangzeb in 1681, who used the city as the base for his campaigns to conquer the Deccan sultanates and subdue the Marathas. He lived there until his death in 1707.
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Aurangabad has always been a prominent region on the Deccan Plateau. Having been inhabited since the stone Age, it has a long artistic and cultural history to which several dynasties have made major contributions over the years.

General Information:

The railway station, tourist office are clustered in the south of the town. The bus stand is 1.5 km to the north.

North-East of here is the crowed old town with its narrow streets and distinct Muslim quarters. Tourist facilities cling to Station Road most of which runs north from the Railway station.

A splinter road claiming the same name, however runs northwest past several hotels and restaurants to Kranti Chowk, Jalna Road runs east to airline office and the airport, while Dr. Rajendra Prasad Marg cuts back to Station Road. W. north of this intersection, Station road becomes Dr. Ambedkar Marg, just before passing the Bus stand.

The turn off for Pavanchakki on the left and the GPO on the right. Its terminus on the norh end of town near the Bibi-ka-Maqbara and the Aurangabad Caves. The present population of Aurangabad City is 8,72,000 (as per Census 2001). Aurangabad has moderate type of climate. The summers are hot and winters are warm. One can visit this Mughal capital any time of the year but it is better to come here between October and March.

Paithan 56 Kms., south of Aurangabad. Paithan is particularly well-known for its Paithani silk sarees and the sarees are available in Aurangabad. The district is famous for Mashru and Himroo fabrics
made of silk; having luster of satin. Bidri-Ware is made with a combination of zinc and copper. It usually has intricate workmanship of pure silver, either embossed, overlaid or inlaid on the surfaces.

During any festive season, the whole city of Aurangabad brightens up and there is lot of excitement in the air.

Due to world fame Ajanta and Ellora Caves and other historical places, tourists from all over the world visits Aurangabad. Therefore, this is the only reason that Aurangabad has got good name in the Industrial market.

Aurangabad Wikipedia.org (2005) in its report states that Aurangabad is the most important industrial center in Marathwada. The Waluj MIDC Industrial Area on the outskirts of the city has a large Bajaj Auto Plant. Other notable industries near Aurangabad are Videocon, Nirlep, Wockhardt, Lupin Laboratories and other Pharmaceuticals Industries.

MIDC.org (2005) has stated that Aurangabad is a success story of MIDCs efforts towards a balanced industrialization of the State. A city with no industrial background is today a thriving hub of industrial activity. The credit which goes to Dr. Rafiq Zukaria, the founder of new Aurangabad. As part of its efforts, the MIDC developed the Waluj and Chikalthana Industrial Areas, which were soon snapped up. This success along with additional demand for quality infrastructure necessitated the development of a third industrial area in the city Shendre Industrial Area.

Aurangabad is the seat of Babasaheb Ambedkar Marathwada University. Notable colleges are the Govt.Medical College, Govt.
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Engineering College, MGMs Jawaharlal Nehru Engineering College and Medical College, Govt. College of Arts and Science Aurangabad, S.B. College of Arts, Science & Commerce and Mulana Azad College of Arts, Science & Commerce, Aurangabad and Aurangabad College for Women. Many Divisional level offices of Central as well as State Government including a Bench of the Bombay High Court are located here.

Apart from major Indian festivals like the Holi, Diwali, Rakhi, Dasehra, Ramzan Idd and Bakrid Idd are celebrated with traditional fervour and joy, there are a few festivals which are very special to Aurangabad and are celebrated with utmost gaiety.

Every year in the third week of November, Maharashtra Tourism Development Corporation (MTDC) organizes the Ellora Festival of Classical Dance and Music at the Caves.

This is the only reason that from all corners of India, Industrialists, high ranking officers, scientists, workers and employees gathered in Aurangabad. Due to this, life styles has been changed and standard of living of people of Aurangabad has become high.

New trend of utilizing readymade food, fast-food, beverages, cold drinks, Bakery and confectionery items, tin pack food items, frozen food items are responsible for many health problems. Dietary pattern affects health. In various communities diet consumed is different as cultural, religious factors also have impact on food.

Life style of people differs with different socio-economic, socio-cultural and religious background. Nutritional patterns occur in the
context of the socio-economic and socio-cultural background of the communities.

In the present circumstances in Aurangabad, epidemic like tuberculosis, asthma, infected diseases, *malaria*, influenza, *meningitis*, cancer, *AIDS*, *hepatitis* - B and people also suffer from *deficiency* diseases like *anaemia*, goiter. Viral infection like flue, jaundice and *gestro*, diarrhea, dysentery and typhoid are the other common health disease are prevalent amongst the population of the city. According to the Annual report 2005-2006 obtained from Salve & Kulkarni of Health Department of Aurangabad City the persons suffered from *malaria* are 186 and persons suffered from Filaria were 220. In the year 2006 the disease of Chikun Guniya and Makad Guniya have been spread throughout the city due to *unhygienic* condition in the city. Due to this disease thousands of people have been affected. This disease is diagnosed by high fever and more joint pains caused by the special kind of mosquitoes. Whereas, the city has two public health centers i.e Govt. Medical College Hospital and Govt. Civil Hospital. In addition to this, the city has four major private health centers viz.

1) Hegdewar Hospital,
2) Bajaj Hospital
3) Dhoot Hospital
4) Aurangabad Critical Care Center / Sahara
5) Apex Hospital

In Aurangabad many diabetologists centers are established. But the diabetes and its complications are increasing day by day in the population of the city. Whereas, the city has ten diabetic centers i.e.
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1) Dr. Mohgaonkar Hospital, 2) Dr. Sarda diabetic center, 3) Dr. Indorkar Diabetic Center, 4) Dr. Sabnis Ayurvedic Diabetic Centre, 5) Dr. Roplekar Hospital, 6) Dr. Patil Diabetic Center, 7) Dr. Sarvode Diabetologist, 8) Dr. Sharma diabetic clinic, 9) Dr. Sami Hospital, 10) Dr. Mohsin Abedi Hospital.

Diabetes is one of the prevalent diseases in Aurangabad City, and hence more attention is given for diabetic management and treatment of complications. Due to this, many diabetology centers are established in few years but out of these, some are giving importance to the nutrition and diet management to the diabetic patients. It is found that there are no dieticians available in the hospitals except a few. Therefore, there is a need in Aurangabad City, that research work is to be done in the field of complication and diet management of the diabetics. Two N.G.Os. like Rotary Club and Lions Club have started the camp for diabetic patients for the awareness of the fast growing disease.

In view of the above, prevalence of the disease a number of research activities are going on. There is a need of research regarding a comparative study amongst the communities and impact of nutrition education. Hence, the present study i.e. Comparative Study of Diabetic Patients in the Different Communities of Aurangabad City has been designed and conducted with the following objectives.
Objectives of the Study:

1) To study the life style (food habits, exercise, addiction and work pattern) of diabetic patients in different communities of Aurangabad City.

2) To know the factors responsible for diabetes in patients.

3) To understand the health problems and complications of diabetic patients.

4) To find out the nutritional status of diabetic persons living in Aurangabad City.

5) To assess the knowledge, attitudes and practices of diabetic patients about nutrition.

6) To suggest:
   i) the patients to have a social life as normal as possible.
   ii) the patients to establish and maintain good metabolic control.
   iii) the patients to avoid the complication of diabetes mellitus.
   iv) the patients to draw up a monitoring programme which should be cost effective in ensuring good control of diabetes and its associated risk factors to protect the patient from developing complications.
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