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Global Scenario of AYUSH and Insight into Ayurved Concept in Diabetes

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1987 the 'Alma–Ata' declaration by WHO stated the evaluation and promotion of traditional medicines. A department called Department of "Indian System of Medicine" was created in March 2003 with a focus for development of traditional system of medicine. Today the globalization process of Ayurved has reached many nations due to the efforts of AYUSH ministry, especially in the Covid-19 pandemic situations. The global Ayurvedic market is estimated to be worth $14.4 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 27.2% from 2024 to 2030. Ayurved described Diabetes Mellitus (DM) as Madhumeha. This ancient evidence-based system of medicine enumerated various herbs and formulations for its management, which needs scientific validations. Prameha which is described as the 'Pre-Diabetic'. These two traditional systems, Ayurved and Unani, emphasize that the first and foremost principle of prevention as well as the treatment of any Diabetes.

Keywords: AYUSH, Ayurved, Globalization, WHO, Prameha

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Introduction

In 1978 the Alma Ata declaration by WHO stated the evaluation and promotion of traditional medicines. A department called department of "Indian system of medicine" was created in March 1995 and renamed as *AYUSH* in November 2003 with a focus for development of traditional system of medicine *AYUSH* includes six indigenous traditional systems of medicine practiced mainly in India with increasing awareness about fitness, health and changing life style. The demand for *AYUSH* system especially *Ayurved* & *Yoga* has increased internationally.

Today the globalization process of *Ayurved* has reached many nations, due to the efforts of *AYUSH* ministry, especially in the Covid-19 pandemic situation.

About 80% of the world's population is estimated to use traditional system of medicine.

According to current scenario of *AYUSH* in India, though there is a good improvement in framing and developing new infrastructural projects and budget allocation but not as much as required to be grown when compared to other technological sectors.

AYUSH which includes *Ayurveda*, *Yoga*, *Naturopathy*, *Unani*, *Siddha*, *Homeopathy*. There has been a progressive growth in the traditional Indian system of medicine sector since the formation of the separate *Ayush* ministry in 2014.

Growth of Ayush Industry

Current scenario: According to the WHO, 80% of the population only 27.1% are clinical ones.

The AYUSH manufacturing industry has been growing at a CAGR (Compound Annual Growth Rate) of 17% every year since 2014. This growth is due to rising consumer awareness of the harmful effects of chemical treatments and products and the shift towards holistic wellness and traditional medicine. The *AYUSH* industry in India has a rich history and a promising future; offering a plethora of opportunities for entrepreneurs with growing global interest in traditional and alternative medicine, sector is poised for substantial growth.

The global scenario of *Ayush* in India is promising with sector poised to have a transformative impact on global healthcare & Indian economy.

Ayush products exported to over 150 countries. *Ayurved* is recognized as a system of traditional medicine in more than 30 countries.

The herbal medicine sector grew at a rate of 7.4% per annum during 2014-20.

The ministry of *Ayush* has established an *Ayush* export promotion council and development a central sector scheme for promotion of international co-operation in *Ayush*.

National Rural Health Mission (NRHM) brought Ayush systems into the mainstream health care.

The global foot print of Ayush is expanding and the sector is expected to contribute significating to the Indian economy.

Global Aspects of *Ayush*

Market Size: The global *Ayush* market was valued at $10 billion in 2022 and is expected to grow by 50% in the coming years. The *Ayurved* market alone was estimated to be $ 4.5 billion in 2019 and is expected to reach $ 14.9 billion by 2026.

Global Recognition:WHO (World Health Organization) has been supporting the development of traditional and complementary system globally. India was recently chosen to be the WHO global centre for traditional medicine.

International Promotion: The ministry of *Ayush* has developed a central sector scheme for promotion of international co-operation in *Ayush*. The scheme includes -

- Supporting Indian *Ayush* manufacturers and service providers to boost exports.
- Establishing *Ayush* Academic chairs in foreign countries.
- Holding training workshop and symposiums to promote awareness and interest in Ayush.
- Setting up an *Ayush* export promotion council.

International Trade: Major net importers of MAPs and extracts include the USA, Japan, Hongkong and Germany. International trade in herbal medicines is subject to both tariff and non-tariff measures (NTMs).

International *Yoga* Day:

The UNGA (United Nations General Assembly) declared June 21 as international *Yoga* Day in 2014.

The resolution endorsed that *Yoga* provides a holistic approach to health and wellbeing. The global *Ayurvedic* market is estimated to be worth $14.4 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 27.2% from 2024 to 2030.

Some factors that are driving the growth of the *Ayurvedic* market include:

Increasing awareness: People are becoming more aware of the benefits of Ayurvedic remedies and the drawbacks of allopathic medications.

Natural remedies: People are seeking more natural remedies for mild illness, especially these approaching retirements' age and youth.

Personal care products: *Ayurvedic* medicines are being used in personal care products like lotions, oils and shampoos.

Clinical studies: The number of clinical studies demonstrating health benefits is increasing.

Ayurved Aspect in Diabetes

Ayurved is an ancient science which needs translation and integration with the present biomedical system.

Ayurved as being beneficial and even curative to a number of chronic illnesses including but not limited to arthritis, low back pain, hypertension, sciatica, migraine, neuropathy, parkinsonism, thyroid imbalance, liver disease, dysmenorrhoea, polycystic ovarian syndrome, irritable bowel syndrome, anxiety and many others.

Ayurved is an ancient medicine practice that is emerging in the United States as a complementary and alternative treatment for chronic illness. Type 2 Diabetes is chronic illness for individuals that has long term implications.

India stands second in the world in numbers of diabetic patients in the world. The International Diabetic Federation (IFD) estimates the total number of diabetic persons to be around 40.9 million by the year end 2025.

Every year it is estimated that 3.2 million people in world die due to diabetes or its related complication.

Type 2 diabetes involves a lack of sensitivity to insulin and the subsequent inability of the body to regulate blood glucose level.

Type 2 diabetes is the most common form of diabetes and primarily results from unhealthy lifestyle choices.

Risk factors for type 2 diabetes are widely known and include being overweight or obese (BMI- body mass index of 25 or higher) family history of diabetes, lack of physical activity, poor diet, including excessive calorie consumption, low fibre intake, high consumption of saturated transfats, high glycaemic load, high glycaemic index, cigarette smoking and alcohol consumption.

Overtime, high blood glucose has major complications including damage to the heart, blood vessels, kidney, eyes, peripheral nerves, digestive system, wound healing ability and sexual response and leads to complication during pregnancy.

Small reduction in haemoglobin A1c (HBA1c) of less than 1% has been shown to have clear association with improved patient outcomes regardless of treatment with western pharmaceuticals or alternative & complementary medicine.

Diabetes mellitus is a disease whose description is mentioned not only in historical text but is detailed in *Ayurvedic* texts.

Ayurved described diabetes mellitus (DM) as *Madhumeha*. This ancient evidence-based system of medicine enumerated various herbs and formulations for its management, which needs scientific validation.

The *Ayurvedic* biological concepts about DM have its close relations with present systems biological approach. Metabolic changes causing tissue damage connected with genetic and immunological irregularities leading to insulin resistance coincide with ancient knowledge.

Diabetes Mellitus is commonly referred to as *Madhumeha* in *Ayurved*. Diabetes is one of the most important non- communicable endocrine disorders of metabolic origin.

Madhumeha or Diabetes is a complex metabolic disorder intricate with genetic variations. Early lipid material excretions (*Meda Dushti*) were detected.

Ayurved enumerates served factors like

1) Changes in demographic structure
2) Sedentary life style (*Ekasthanasana*) like averted sleep pattern

3) Changed food habit
4) And change in environment (including air, water, habit, occupation, etc.) are described as *Janapadabidhamsana* (epidemic) in *Charak Samhita*.

Holistic approach of *Ayurved* in Diabetes management

Ayurved as robust tool for diabetes management through holistic approach. It was found that present diagnostic paradigm towards disease needs rethinking to retrospect "pro-diseases" concept & supplement preventive thereby on lines of *Ayurved* biological, combinational herbal & herbomineral thereby in view of "poly pharmacology" may be smart option in complex metabolic disorder like diabetes. Clinical should be first step in research to incorporate concepts of *Prakriti* (Pharmacogenomics & Ayurgenomics) in therapy. These clinical observations should guide development of disease models (in vitro, in vivo or in silica) keeping relevant systems biological in consideration. No doubt it is multifarious task to initiate.

However, it was found that this "bedside to bench" approach of research in *Ayurved* can change scenario of present therapy & management in diabetes. In Ayurved personalized diet and medicine is selected on basis of *Trisutra* (three primary reasons), viz *Hetu* (cause), *Linga* (features) and *Ausadha* (therapeutics). The principals of treatment in *Madhumeha* patients may be classified as 1. *Sthula Pramehi* (obese) and 2. *Krisha Pramehi* (lean). Both cause and treatment of type 2 diabetes are related to diet and lifestyle. The ancient medicinal practice of *Ayurved* which is rooted in diet and lifestyle is a promising traditional approach to treatment of type 2 diabetes. Type 2 diabetes should be treated with exercise, diet and lifestyle modification. All of *Ayurvedic* treatments forms herbal therapy is most commonly studied. Some of studied herbs that prove beneficial for lowering of glucose levels include *Coccinia indica* (*kundru*), holy basil (*Tulsi*), fenugreek (*Methi*), *Gymnema sylvestre* (*Gurmar*), Ayush-82, *Cinnamomum tamala* (*Tejpatta*), *Eugenia jambolana* (*Javaplum*) and *Momordica charantia* (bitter guard/ *Karela*).

Indian medicinal plants with anti-diabetic and related beneficial properties:

Plant Name	Ayurvedic/common name/herbal formulation	Anti diabetic and other beneficial effects in traditional medicine
Annona squamosa	Sugar apple	Hypoglycaemic and anti-hyperglycaemic activities of ethanolic leaf-extract, Increased plasma insulin level
Artemisia pallens	Davana	Hypoglycaemic, increases peripheral glucose utilization or inhibits glucose reabsorption
Areca catechu	Supari	Hypoglycaemic
Beta vulgaris	Chukkander	Increases glucose tolerance in OGTT
Boerhavia diffusa	Punarnava	Increase in hexokinase activity,decrease in glucose-6-phosphatase and fructose bis-phosphatase activity, increase plasma insulin level, antioxidant
Bombax ceiba	Semul	Hypoglycaemic
Butea monosperma	Palasa	Antihyperglycemic
Camellia sinensis	Tea	Anti-hyperglycaemic activity, antioxidant
Capparis decidua	Karir or Pinju	Hypoglycaemic, antioxidant, hypolipidaemic
Caesalpinia bonducella	Sagarghota, Fever nut	Hypoglycaemic, insulin secretagogue, hypolipidemic
Coccinia indica	Bimb or Kanturi	Hypoglycemic
Emblica officinalis	Amla, Dhatriphala, a constituent of herbal formulation, “Triphala”	Decreases lipid peroxidation, antioxidant, hypoglycemic
Eugenia uniflora	Pitanga	Hypoglycemic, inhibits lipase activity
Enicostema littorale	Krimihrita	Increase hexokinase activity, Decrease glucose 6-phosphatase and fructose 1,6 bisphosphatase activity. Dose dependent hypoglycemic activity
Ficus bengalenesis	Bur	Hypoglycemic, antioxidant
Gymnema sylvestre	Gudmar or Merasingi	Anti-hyperglycemic effect, hypolipidemic
Hemidesmus indicus	Anantamul	Anti snake venom activity, anti-inflammatory
Hibiscus rosa-sinesis	Gudhal or Jasson	Initiates insulin release from pancreatic beta cells
Ipomoea batatas	Sakkargand	Reduces insulin resistance

Plant Name	Ayurvedic/common name/herbal formulation	Anti diabetic and other beneficial effects in traditional medicine
Momordica cymbalaria	Kadavanchi	Hypoglycemic, hypolipidemic
Murraya koenigii	Curry patta	Hypoglycemic, increases glycogenesis and decreases gluconeogenesis and glycogenolysis
Musa sapientum	Banana	Antihyperglycemic, antioxidant
Phaseolus vulgaris	Hulga, white kidney bean	Hypoglycemic, hypolipidemic, inhibit alpha amylase activity, antioxidant. Altered level of insulin receptor and GLUT-4 mRNA in skeletal muscle
Punica granatum	Anar	Antioxidant, anti-hyperglycemic effect
Salacia reticulata	Vairi	inhibitotory activity against sucrase, α-glucosidase inhibitor
Scoparia dulcis	Sweet broomweed	Insulin-secretagogue activity, antihyperlipidemic, hypoglycemic, antioxidant
Swertia chirayita	Chirata	Stimulates insulin release from islets
Syzygium alternifolium	Shahajire	Hypoglycemic and antihyperglycemic
Terminalia belerica	Behada, a constituent of "Triphala"	Antibacterial, hypoglycemic
Terminalia chebula	Hirda	Antibacterial, hypoglycemic
Tinospora crispa		Anti-hyperglycemic, stimulates insulin release from islets
Vinca rosea	Sadabahar	Anti-hyperglycemic
Withania somnifera	Ashvagandha, winter cherry	Hypoglycemic, diuretic and hypocholesterolemic

Conclusion

AYUSH includes six indigenous traditional systems of medicine practiced mainly in India with increasing awareness about fitness, health and changing life style. The demand for AYUSH system especially *Ayurved* & *Yoga* has increased internationally.

Today the globalization process of *Ayurved* has reached many nations, due to the efforts of AYUSH ministry, especially in the Covid-19 pandemic situation. About 80% of the world's population is estimated to use traditional system of medicine. The global foot print of *Ayush* is expanding and the sector is expected to contribute significating to the Indian economy.

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