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An ayurvedic arena for diabetes treatment

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ABSTRACT

Diabetes mellitus is a group of metabolic disorders of fat, carbohydrate, and protein it cause defects in insulin secretion, insulin action or both. These days the incidence of type -2 DM is increasing word wide; it's due to western life style. The present review article gives a general idea of diabetic mellitus, its treatment by using insulin, oral hypoglycemic drugs and herbal drugs. Despite considerable progress in the treatment of diabetes by oral hypoglycemic agents, search for newer drugs continues because the existing synthetic drugs have several limitations .The herbal drugs with antidiabetic activity are yet to be commercially formulated as modern medicines, even though they have been acclaimed for their therapeutic properties in the traditional systems of medicine. A number of plants have been described in Ayurveda and other traditional medicine for the treatment of diabetes. But information about them is not easily available, in present review article author trying to summarize the various medicinal plant, there botanical name ,common name and part of plant's used in treatment and control hyperglycemia. Goals of therapy in diabetes are directed towards attaining normal glucose level in blood and improved life style by using of herbal medication. India, with their reach sources of medicinal plant which may be used for the treatment of DM.

Kew words – Diabetes, medicinal plant, source of plant, metabolic disorder, and insulin.

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INTRODUCTION

Diabetes mellitus is commonly known by abnormally high levels of sugar (glucose) in the blood. Insulin stimulates muscle and fat cells to remove glucose from the blood. It also stimulates the liver to metabolize glucose, causing the blood sugar level to decrease and reaches to normal levels. In people with diabetes, blood sugar levels remain high because insulin is not being produced at all. The most common forms of diabetes are type 1 diabetes (5%), which is an autoimmune disorder, and type 2 diabetes (95%), which is associated with obesity. Gestational diabetes is a form of diabetes that occurs in pregnancy, and other forms of diabetes are very rare and are caused by a single gene mutation¹

Diabetes means that our blood glucose (sugar) is too high. Our blood always has some glucose in it because the body uses glucose for energy. But too much glucose in the blood is not good for our health. Our body changes most of the food we eat into glucose. Our blood takes the glucose to the cells throughout our body. The glucose needs insulin to get into the body's cells. Insulin is a hormone made in the pancreas, an organ near the stomach. Insulin helps the glucose from food get into body cells. If our body does not make enough insulin or the insulin does not work right, the glucose can't get into the cells, so it stays in the blood. This makes our blood glucose level high, causing the diabetes.

The main signs of diabetes:

- being very thirsty
- urinating a lot
- feeling very hungry
- feeling very tired
- losing weight without trying
- having sores that are slow to heal
- having dry, itchy skin
- losing feeling in or having tingling in the hands or feet
- having blurry vision
- having more infections than usual²

HERBS FOR DIABETES

Since our past time, diabetes has been treated with plant medicines. Recent scientific investigation has confirmed the efficacy of many of these preparations, some of which are

remarkably effective. Only those herbs that appear most effective, are relatively non-toxic and have substantial documentation of efficacy are covered here.

- Bitter melon, also known as balsam pear, is a tropical vegetable widely cultivated in Asia, Africa and South America, and has been used extensively in folk medicine as a remedy for diabetes.
- Onion and garlic have significant blood sugar lowering action.
- Experimental and clinical studies have demonstrated the ant-diabetic properties of fenugreek seeds.
- A decoction of the leaves of the blueberry has a long history of folk use in the treatment of diabetes.
- Asian ginseng is commonly used in traditional Chinese medicine to treat diabetes³

Table 1– showing common name, botanical name, family and plant part use in DM

S.NO	COMMON NAME	BOTANICAL NAME	FAMILY	PART USED
1	Babhul ⁴	Acacia Arabica	Rubaceae	Seeds
2.	Touch-me-not ⁵	Acanthopanax senticosus	Apiaceae	Leaves
3.	Malabar nut ⁴	Adhtoda vasica	Acanthaceae	Leaves
4	Wood apple , Bael ⁶	Aegle marmelos	Rutaceae	Root , bark ,leaves
5.	Common horse-chestnut ^{7,8}	Aesculus hippocastanum linn.	Hippocastanaceae	Seeds
6.	Hairy agrimony ^{9,10}	Agrimonia pilosa ledeb.	Rosaceae	Extract of Herb
7.	Onion ^{4,11}	Allium cepa	Liliaceae	Bulbs(oil) , Stems , Tops
8.	Garlic ¹²	Allium sativum linn.	Alliaceae	Whole plant
9.	Aloe ^{4,13}	Aloe barbadensis	Liliaceae	Leaf pulp
10.	Marsh mallow ⁴	Althaea officinalis	Malvaceae	Leaves , whole plant
11.	Spiny amaranth ⁴	Amaranthus spinosus	Amaranthaceae	Stem
12.	Kalmegh ¹⁴	Andrographis paniculata	Acanthaceae	Extract of whole plant
13.	Sugar apple ^{15,16}	Annona squamosal linn.	Annonaceae	Leaf
14.	Davana ¹⁶	Artemisia pallens wall.	Compositae	Aerial parts
15.	Kathal ¹⁷	Artocarpus heterophyllus lam.	Moraceae	Fruits
16.	Atractylode ⁴	Atractylode japonica	Compositae	Rhizomes
17.	Neem ^{4,18}	Azadirachta indica	Meliaceae	Leaves ,seed oil
18.	Zacum oil plant ¹⁹	Balanites aegyptiaca	Simarubiaceae	Fruits
19.	Porcupine flower ⁴	Barleria lupulina	Acanthaceae	Aerial parts
20.	Darhald ⁴	Berberis aristata	Berberidaceae	Stem , bark
21.	Leaf beet , Chukkander ²⁰	Beta vulgaris var. ciclalinn.	Chenopodiaceae	Roots
22.	Life plant ^{16,21}	Biophytum sensitivum linn.		Leaf extract , Whole plant

23.	Tar vine ^{16,22}	Boerhavia diffusa linn	Nyctaginaceae	Leaf
24.	Great bougainvillea ⁴	Bougainvillea spectabilis	Nyctaginaceae	Leaves
25.	Brown mustard ^{16,23}	Brassica juncea linn.	Brassicaceae	Whole plant
26.	Bangbang ²⁴	Caesalpinia bonducella	Leguminosea	Seeds
27.	Pigeon pea ¹⁶	Cajanus cajan linn.	Fabaceae	Leaves and Stem twigs
28.	Green Tea ²⁵	Camellia sinesis linn.	Theaceae	Whole plant
29.	Kerda , karril ²⁶	Capparis decidua	Capparaceae	Fruits
30.	Carrila ¹⁶	Casearia esculentaroxb.	Flacourtiaceae	Roots
31.	Tanner's cassia ²⁷	Cassia auriculata linn	Leguminosae	Flower
32.	Sadabhar ^{28,29}	Catharanthus roseus linn.	Apocynaceae	Leaves
33.	Bayberry ³⁰	Cinnamomum tamala	Lauraceae	Leaves
34.	Bitter apple ³¹	Citrulluscolocynthis (linn) schrad	Cucurbitaceae	Seeds
35.	Arkakanta ¹⁷	Cleome viscosalinn.	Capparaceae	Whole plant
36.	Ivy gourd ³²	Coccinia indica	Cucurbitaceae	Leaves
37.	Coriander ^{29,33}	Coriandrum sativum linn.	Apiaceae	Seeds
38.	Chinese yam ⁴	Discorea batalas	Discoreaceae	Tubers
39.	Amla ³⁴	Embllica officinalis	Euphorbiaceae	Fruit
40.	Blume ³⁵	Enicostemma littorale blume	Gentianeae	Whole plant
41.	Blue gum ⁴	Eucalyptus globules	Myrtaceae	Leaves
42.	Banyan tree ³⁶	Ficus bengalensis linn.	Moraceae	Bark
43.	fineleaf fumitory ³⁷	Fumaria parviflora	Papaveraceae	Whole plant
44.	Globe daisy ³⁸	Globularia alypum	Globulariaceae	Leaves
45.	Soya oil ⁴	Glycine max.	Leguminoseae	Seeds
46.	Gudmar , Madhunasini ⁴	Gymnema sylvestre	Asclepiadaceae	Leaves
47.	Haronga ³⁹	Hamiltonia suaveoloens	Rubiaceae	Roots
48.	Screw tree ^{40,16}	Helicteres isora linn.	Sterculiaceae	Roots
49.	China rose/ Jasson ⁴¹	Hibiscus rosa-sinensis	Malvaceae	Flower
50.	Hamada ⁴²	Hamada salicornica	Hamamelidaceae	Whole plant
51.	Lupulin ⁴	Humulus lupulus	Cannabinaceae	Strobiles
52.	Pushkarmoola ⁴	Inula racemoma	Tubuliflorae	Roots
53.	Berries ⁴³	Juniperus communis linn.	Cupressaceae	Dried berries
54.	Jarul ⁴	Langerstroemic speciosa	Lythraceae	Bark , Root , Seed, Leaves and Ripe fruits.
55.	Lantana , wild sage ⁴⁴	Lantana camara linn.	Verbenaceae	Leaves
56.	⁴	Lupus albus	Papilionaceae	Seeds
57.	Purple loosestrife ⁴⁵	Lythrum salicaria	Lythraceae	Stem flower
58.	Velvet bean ⁴⁶	Macuna pruriens	Leguminosae	Whole plant , powdered seed

59.	Mango ⁴⁷	Mangifera indica linn.	Anacardiaceae	Leaves
60.	Bitter gourd ^{26,48}	Momordica charantia	Cucurbitaceae	Fruits,pulp,seed,leaves ,and whole plant.
61.	White mulberry ⁴⁹	Morus alba linn.	Moraceae	Leaf
62.	Curry tree , Sweet neem ⁵⁰	Murraya koenigii	Rutaceae	Leaves
63.	Black cumin ⁵¹	Nigella sativa	Ranunculaceae	Seeds
64.	Nilkand ⁵²	Nymphaea stellate	Nymphaeaceae	Leaves
65.	Holy basil ^{16,53}	Ocimum sanctum	Labiatae	Leaves
66.	Olive ⁴	Olea europaea var. oleastre	Oleaceae	Leaves
67.	Rice ⁵⁴	Oryza saliva	Gramineae	Roots
68.	Common garden peony ⁵⁵	Paeonia lactiflora pall.	Ranunculaceae	Roots
69.	Asiatic ginseng ⁴	Panax ginseng	Araliaceae	Roots
70.	Fragrant pandan ⁵⁶	Pandanus odoros	Pandanaceae	Roots
71.	Anamu ⁵⁷	Petiveria alleaceae linn.	Phytolacaceae	Leaves, stems
72.	Gulf leaf-flower ⁵⁸	Phyllanthus fraternus	Euphorbiaceae	Leaves
73.	Lobia ^{59,53}	Phaseolus vulgaris	Papilionaceae	Whole plant
74.	Fragrant solomon's seal, Dropberry ⁶⁰	Polygonatum officinale	Lamiaceae	Rhizomes
75.	Karanja ⁴	Pongamia pinnata	Leguminoseae	Bark
76.	Peach ⁴	Prunus persica	Rosaceae	Leaves
77.	Guava ⁶¹	Psidium guajava linn.	Myrtaceae	Leaves
78.	Indian Malabar ⁴	Pterocarpus marsupium	Fabaceae	Bark
79.	Pomegranate ⁶²	Punica granatum linn.	Punicaceae	Flower , seed
80.	American ginseng ^{63,4}	Radix panacis quinquefolii	Araliaceae	Root , rhizomes
81.	Indian snake root ⁴	Rauwolfia serpentine	Apocynaceae	Leaves , Root
82.	Roseroot ⁶⁴	Rhodiola sachalinensis	Crassulaceae	Roots
83.	Salacia ^{16,65,53}	Salacia reticulate wight	Celastaceae	Whole plant
84.	Ashok ³⁴	Saraca asoca	Caesalpinaceae	Bark , Flower
85.	Sweet broom weed ^{66,53}	Scoparia dulcis linn.	Scrophulariaceae	Whole plant , leaf,leaves
86.	Litchi ^{67,4}	Semen litchi	Sapindaceae	Seeds
87.	Saptarangi ⁶⁸	Solatia macrosperma	Hippocrateaceae	Leaves , Roots
88.	Fireball, fountaintree, African tulip tree ⁶⁹	Spathodea campanulata	Bignoniaceae	Stem, bark
89.	Sand spurrey ⁷⁰	Spergularia purpurea	Caryophyllaceae	Whole plant
90.	Alkali blite ⁷¹	Suaeda fruticosa	Chenopodiaceae	Aerial parts
91.	Indian Gentian ⁷²	Swertia chirayita	Gentianaceae	Whole plant
92.	Jamun ¹⁷	Syzygium cumini linn.	Myrtaceae	Leaves , seeds kernals , gum , fruits
93.	Fish poison ⁷³	Tephrosia purpurea	Fabaceae	Seeds
94.	Myrobalan or Haritaki ⁷⁴	Terminalia chebula	Combretaceae	Fruits
95.	Spanish Moss ⁷⁵	Tillandsia usneoides	Bromeliaceae	Extract of plant

		linn.		
96.	Guduchi ⁷⁶	Tinospora cordifolia	Menispermaceae	Roots
97.	Gokhru ^{4,77}	Tribulus terrestris linn.	Zygophyllaceae	Whole plant extract
98.	Parwal, Pointed gourd ⁷⁸	Tricosanthes dioica	Cucurbitaceae	Seeds
99.	Fenugreek ⁷⁹	Trigonella foenum graecum	Fabaceae	Seeds
100	Zygophyllum ⁸⁰	zygophyllum gaetulum	Zygophyllaceae	Leaves

CONCLUSION

The above list of herbal plants has potent anti-diabetic effect. The different plants parts are used as anti-diabetic herbal drugs in all over the world. The use of herbal anti-diabetic drugs is not common among the diabetic patients. Doctors should encourage these patients for using these herbal drugs & these may help in managing the disease and prove beneficial to patients.

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