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# ANTI-DIABETIC

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# ANTI-DIABETIC

- ✘ Antidiabetic drugs are commonly used to manage diabetes or to keep the blood glucose level in desired limit. Eg: Prerocarpus, Gymnemasylvestris.

## .PTEROCARPUS

- ✘ **Synonyms:** Bijasal, Indian kino tree, Malbar kino.
- ✘ **Biological Source:** It consists of dried juice obtained by making vertical incisions to the stem bark of the plant *Pterocarpus marsupium*, belonging to family Leguminosae.
- ✘ **Geographical Distribution:** It is found in hilly regions of Gujarat, Madhya Pradesh, Uttar Pradesh, Bihar, and Orissa



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# PTEROCARPUS



- × **Description**
- × Colour: Ruby-red
- × Odour: Odourless
- × Taste: Astringent
- × Shape: Angular grains
- × Size: 3 to 5 to 10 mm granules
- × **Extra features:** The pieces of kino are angular, glistening, transparent, breaking with vitreous fracture.



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# PTEROCARPUS

- ✘ **Chemical Constituents:** Kino contains about 70–80% of kinotannic acid, kino-red, k-pyrocatechin (catechol), resin and gallic acid. Kinotannic acid is glucosidal tannin, whereas kino-red is anhydride of kinoin. Kinoin is an insoluble phlobaphene and is produced by the action of oxydase enzyme. It is darker in colour than kinotannic acid.
- ✘ **Chemical Tests:** 1. When the solution of drug is treated with ferrous sulphate, green colour is produced. 2. With alkali (like potassium hydroxide) violet colour is produced. 3. With mineral acid, a precipitate is obtained.
- ✘ **Uses:** Kino is used as powerful astringent and also in the treatment of diarrhoea and dysentery, passive haemorrhage, toothache, and in diabetes.



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# GYMNEMA

- ✘ Synonym: Gudmar, Madhunashini
- ✘ Biological Source: Leaves of perennial woody climber *Gymnema sylvestre* belonging to family Asclepiadaceae.
- ✘ Geographical Distribution: India
- ✘ Description: Colour: Green; Odour: Pleasant and aromatic; Taste: Tasteless  
Size: 3-5 cm long and 1-2 cm wide; Shape: Elliptical or ovate with acute acuminate apex.
- ✘ Extra feature: Paralyze the taste bud against sweet and bitter taste





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# GYMNEMA

- ✘ **Chemical Constituent:** Leaves contains pentriacontane, hentriacontane, phytin, mucilage inositol, d-quercetol, gymnemic acid (anti-sweet compound). Gymnemic acid is a mixture of closely related 9 glycosides; fractional distillation is used to separate different gymnemic acid. Ethyl acetate extracted fraction containing gymnemic acid derivatives causes the paralyzing effect.
- ✘ **Chemical Test:**
- ✘ Dilute solution anesthetize the sweet taste bud for few hours.
- ✘ Addition of HCl results in voluminous precipitate.



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# ANTIDYSENTERICS

- ✘ Dysentery is an inflammatory disorder of the lower intestinal tract, usually caused by bacterial or parasitic infection. Antidysenterics are used for treating dysentery. Eg: Ipecac

## IPECAC

- ✘ **Synonyms:** Ipecacuanha; Brazilian or Johore Ipecac; Hippo; Ipecacuanha root; Radix ipecacuanhae.
- ✘ **Biological Source:** Ipecac consists of the dried root or rhizome of *Cephaelis ipecacuanha* (Rio or Brazilian Ipecac) or of *Cephaelis acuminata* (Cartagena, Nicaragua or Panama Ipecac), belonging to family Rubiaceae.
- ✘ **Geographical Source:** Geographical Source The plant is indigenous to Brazil and also found in Colombia, Cartagena, Nicaragua. Ipecac is cultivated in Darjeeling and Sikkim in India



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# IPECAC

- ✘ **Description:** Colour: brick red to brown; Odour: Slight; Taste: Bitter and Acrid; Shape: Cylindrical; Size: 5–15 cm long, 6 mm in diameter; Extra: External surface is annulated; fracture of root is short and shows a thick, greyish bark and small dense wood.
- ✘ **Microscopic character:** Next to cork cells, secondary cortexes (phelloderm), the cells of which are parenchymatous and contain starch in compound grains with from two to eight components, or raphides of calcium oxalate. The individual starch grains are muller-shaped.
- ✘ **Chemical Constituents:** Ipecac root contains 2–3% of total alkaloids. These include emetine, cephaeline, psychotrine and psychotrine methyl ether. All the alkaloids have isoquinoline ring system and, are present in the bark. Emetine is the active alkaloid and as it does not contain a free phenolic group it is called nonphenolic alkaloid. Emetine base is noncrystalline but its salts are crystalline, Rio ipecac contains slightly more than 2% alkaloids from which emetine are two-thirds and cephaeline is one-third. In Cartagena ipecac, alkaloids are up to 2.2% and emetine is about one-third and cephaeline two-thirds. The other alkaloids are in traces.





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# IPECAC

- ✘ **Chemical Test of Emetine**
- ✘ Powdered drug (0.5 g) is mixed with HCl (20 ml) and water (5 ml), filtered and to the filtrate (2 ml) potassium chloride (0.01) is added. If emetine is present, a yellow colour develops which on standing for 1 hour gradually changes to red.
- ✘ **Uses:** Ipecac is emetic and used as an expectorant and diaphoretic and in the treatment of amoebic dysentery.
- ✘ **Adulterants:** The drug is adulterated with *Richardsonia scabra*, *Cryptocoryne spiralis*, *Psychotria emetica*, *Manettia ignita*, *Hybanthus ipecacuanha*, *Asclepias curassavica*, *Anodendron paniculatum*, *Calotropis gigantean*.



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# REFERENCES & FURTHER READINGS

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