3. PLANT PROFILE


**Biological Source:** Gymnema sylvestre

**Common Name:** Gurmar

**Description:** *G. Sylvestre* is a large climber, rooting at nodes, leaves elliptic, acuminate, base acute to acuminate, glabrous above sparsely or densely tomentose beneath; Flowers small, in axillary and lateral umbel like cymes, pedicels long; Calyx-lobes long, ovate, obtuse, pubescent; Corolla pale yellow campanulate, valvate, corona single, with 5 fleshy scales. Scales adnate to throat of corolla tube between lobes; Anther connective produced into a membranous tip, pollinia 2, erect, carpels 2, unilocular; locules many ovuled; Follicle long, fusiform. (Mukherjee PK 1981, Glaser, D et al. 1984)

**Active compounds:** The leaves contain pentriacontene, hentriacontane, phytin, α and β chlorophylls, Resin, Tartaric acid, formic acid, butyric acid mucilage

**Uses:** It is used as antidiabetics, stomatchic laxative and diuretics. The antidiabetics formulation of this drug are commercially available. Hypoglycemic effect is due to indirect stimulation of insulin secretion by pancreas dental plaque and caries are prevented by gymnemic acid. (Stoecklin, Walter 1969, Yoshikawa K 1989, Mukherjee PK 1996)

![Figure 5: Leaves Gymnema sylvestre R.Br](image)

**Figure 5:** Leaves *Gymnema sylvestre* R.Br
3.2. *Eugenia jambolana* Lam (Jamun) (Royal Botanic Gardens 2013)

**Kingdom:** Plantae

**Division:** Magnoliophyta

**Class:** Magnoliopsida

**Family:** Myrtaceae

**Genus:** *Eugenia*

**Species:** *jambolana* Lam.

**Synonym’s:** *Syzygium cumini, Eugenia cumini* (L.) Druce

**English:** Black plum, Jaman

**Hindi:** Jamun

**Biological source:** *Eugenia jambolana* Lam.

**Family:** Myrtaceae

**Description:** This plant is a large evergreen tree up to 30 m high. Bark pale brown, slightly rough on old stems. Fruit is one seeded berry and blue. Leaves opposite, simple, entire, elliptic to broadly oblong, smooth, glossy, somewhat leathery, 7.5-15 cm long, short pointed at tips. Flowers white 7.5-13 mm across in branched clusters at stem tips, calyx cuplike; 4 petals, fused into a cap; many stamens. (Thakura VC 2011)

**Active compounds:** Eugenia Jambolana contain glycosides, a trace of pale yellow essential oil, fat, resin, albumin, chlorophyll, an alkaloid- jambosine3, Gallic acid, ellagic acid, corilagin and related tannin,3,6-hexahydroxydiphenoylglucose and its isomer 4,6- hexahydroxydiphenoylglucose, 1-galloylglucose, 3-galloylglucose, quercetin and elements such as zinc, chromium, vanadium, potassium and sodium. Unsaponifiable matter of seed fat contains β-sitosterol. (Thakura VC 2011)
Uses: Its bark is acrid, sweet, digestive, and astringent to the bowels, anthelmintic and in good for sore throat, bronchitis, asthma, thirst, biliousness, dysentery, blood impurities. (Botanical Society of Britain and Ireland 2014)

Figure 6: Seed of *Eugenia jambolana* Lam
3.3. *Momordica charantia* Linn (Karela) (Lim TK 2013)

**Kingdom:** Plantae  
**Subkingdom:** Tracheobionta  
**Superdivision:** Spermatophyta  
**Division:** Magnoliophyta  
**Class:** Magnoliopsida  
**Subclass:** Dilleniidae  
**Family:** Cucurbitaceae  
**Genus:** Momordica  
**Species:** *Momordica charantia* L.

**Synonym’s:** *M. chinensis, M. elegans, M. indica, M. operculata*

**English:** Bitter Gourd  
**Hindi:** Karela

**Biological source:** *Momordica charantia*

**Family:** Cucurbitaceae

**Description:** This herbaceous, tendril-bearing vine grows to 5 m. It bears simple, alternate leaves 4–12 cm across, with three to seven deeply separated lobes. Each plant bears separate yellow male and female. Fruit has ovoid, ellipsoid or spindle shaped usually distinct warty looking exterior and an oblong shape. Seeds in size 8-13mm, long compressed, corrugate on the margin, sculptured on both faces. (Grover JK, 2004, Beloin N et al. 2005)

**Chemical constituent:** *M. charantia* primarily consists of glycosides, Proteins, Sterols and fatty acids and volatile constituents. The fruit and leaves of the plant contain two alkaloids one of them being momordicine. The plant contains several
biologically active compounds, chiefly momordicin I and momordicin II, and cucurbitacin B. (Ananya Paul et al. 2010, Semize et al. 2007)

**Uses:** This plant is well known to possess antihyperglycemia, anticholesterol, immunosuppressive, antiulcerogenic, anti-seperma-togenic and androgenic activities anti-HIV, anti-ulcer, anti-inflammatory, anti-leukemic, anti-microbial, anticholesterol, immunosuppressive, and anti-tumor activities. (Wang BL et al. 2011, Lo HY 2013)

![Fruits of Momordica Charantia](image)

**Figure 7:** Fruits of *Momordica Charantia*
3.4. *Emblica officinalis* Gaertn. (Amla) (Bachok MF 2014)

Kingdom : Plantae
Division : Angiospermae
Class : Dicotyledonae
Order : Geraniales
Family : Euphorbiaceae
Genus : *Emblica*
Species : *officinalis* Gaertn.

Synonym: *Phyllanthus emblica* Linn.

Biological source: *Emblica officinalis* Gaertn.

Family: Euphorbiaceae

Description: The bark of Amla is gray in color and peals in irregular patches. Its feathery leaves, which smell like lemon, are of linear oblong shape and size 10 to 12 mm length and 3 to 6 mm width. Its flowers are greenish yellow, in axillary fascicles, unisexual, males numerous on short slender pedicels. They grow in auxiliary clusters and start appearing in the beginning of spring season. (Lim TK 2012, Rao TP et al. 2005)

Chemical constituent: The major constituents are Vitamin C. It content up to 600 to 720 mg/100g of fresh pulp. Amla are also rich in mineral matter like phosphorus, iron and calcium. The fruits of *Emblica officinalis* are rich in tannins. The fruits have 28% of the total tannins distributed in the whole plant. The fruit contains two hydrolysable tannins Emblicanin A and B, which have antioxidant properties, one on hydrolysis gives gallic acid, ellagic acid and glucose wherein the other gives ellagic
acid and glucose. The fruit also contains Phyllemblin. (Jacob A 1988, Qureshi SA 2009)

**Uses:** It is aperients, carminative, diuretic, aphrodisiac, laxative, astringent and refrigerant. It is the richest known source of vitamin 'C'. It is useful in anemia, jaundice, dyspepsia, haemorrhage disorders, diabetes, asthma and bronchitis. It cures insomnia and is healthy for hair. (Bhattacharya A 1999, Habib-ur-Rehman et al. 2007)

Figure 8: Fruits of *Emblica officinalis*
3.5. *Curcuma longa* Linn (Turmeric) (National Institutes of Health 2012)

**Kingdom:** Plantae

**Subkingdom:** Viridiplantae

**Superdivision:** Embryophyta

**Division:** Tracheophyta

**Class:** Phanérogames

**Order:** Zingiberales

**Family:** Zingiberaceae

**Genus:** *Curcuma* L

**Species:** *Curcuma longa* L

**Common Name:** Haldi

**Biological source:** *Curcuma longa* Linn

**Family:** Zingiberaceae

**Description:** The drug is yellowish brown colour with characteristic odour and slightly bitter taste turmeric rhizomes are oblong while long variety is cylindrical and short branch. Root scars and annulations are present (Tahira JJ et al. 2010, Chattopadhyay Ishita 2004)

**Chemical constituent:** Turmeric contains up to 5% essential oils and the chef component of curcuminoids is known as curcumin (diferuloylmethan). The yellow-pigmented curcuminoids represent 2% -5% of the root, typically composed of 85% as curcumin, 10% as demethoxycurcumin and 5% as disdemethoxycurcumin. Turmeric also contains: sesquiterpenes (turmerone, atlantone, zingiberone, turmeronol, germacrone, and bisabolene), carbohydrates, protein, resins, and caffeic acid. (National Institutes of Health 2012, Tayyem RF 2006)
Uses: Turmeric exhibits antimicrobial activity, anti-inflammatory, antioxidant, anticarcinogenic, antiviral & antidiabetogenic. It is used in blood disorders, leukoderma, scabies, small-pox, and sprains. (Khalsa SVK 2013, Deb Nilanjana et.al 2013)

![Rhizomes of Curcuma longa](image)

**Figure 9**: Rhizomes of *Curcuma longa*