

## Medicinal Potential of *Operculina turpethum*

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*Operculina turpethum*, commonly known as Indian Jalap, Trivrit or Transparent wood rose is a medicinal plant used in folklore herbal remedies around the globe to treat various ailments. The plant is rich source of several secondary metabolites making it a potent medicine.

### 1. Botanical classification and distribution

*Operculina turpethum* Linn. (Silva Manso) syn. *Ipomoea turpethum*, commonly called as Indian Jalap, Pithori, Trivrit or Transparent wood rose is a member of Convolvulaceae family. The plant is widely distributed in India, China, Bangladesh, Cambodia, Indonesia, Pakistan, Thailand, America, Madagascar, and Australia. It is commonly cultivated in gardens as an ornamental plant.

#### Botanical classification

- **Kingdom:** Plantae
- **Division:** Angiospermae
- **Class:** Dicotyledoneae
- **Order:** Solanales
- **Family:** Convolvulaceae
- **Genus:** *Operculina*
- **Species:** *turpethum*

### 2. Morphology

It occurs in two forms: *Shweta* (White Turpeth) and *Krishna* (Black Turpeth). It is a perennial climber which grows up to 4 to 5 meter in length. The root and stem tissues are fleshy with milky juice. Stem is elongated and winged. On maturity, it becomes very hardy. Roots are long, slender and much branched. Leaves are heart-shaped and pubescent on both sides [Fig. 1]. The white campanulate flowers form globular capsules with four black seeds (Ahmad *et al.*, 2017).

### 3. Phytoconstituents

Several reports are available on the medicinal value of this plant. It is used in various traditional remedies around the globe to treat various diseases. In Ayurvedic, Unani, and Chinese pharmacologically important formulations, this plant is used in different ways, including dried powdered form, paste, suspension and solution. The plant is rich in secondary metabolites, like flavonoids, tannins, alkaloids, turpenoids, glycosides, sito-steroids, polyphenols, essential oils, and resins (Jalapine and



Fig.1- *O. turpethum* Linn. (syn. *Ipomoea turpethum*) plant grown in net house of CCS HAU, Hisar

Convolvulin) [Fig. 2 (upper portion)]. The Root and root bark are rich in turpethinic acids (A-E), turpethins, operculinosides (A-D), scopoleptin, betulin, lupiol etc. Stem contains turpethosides, glucosides, salicylic acid and glycosides (Ding *et al.*, 2012). Leaves and seeds possess cardiotoxic glycosides like oleandrin, and karabin (Ahmad *et al.*, 2017).

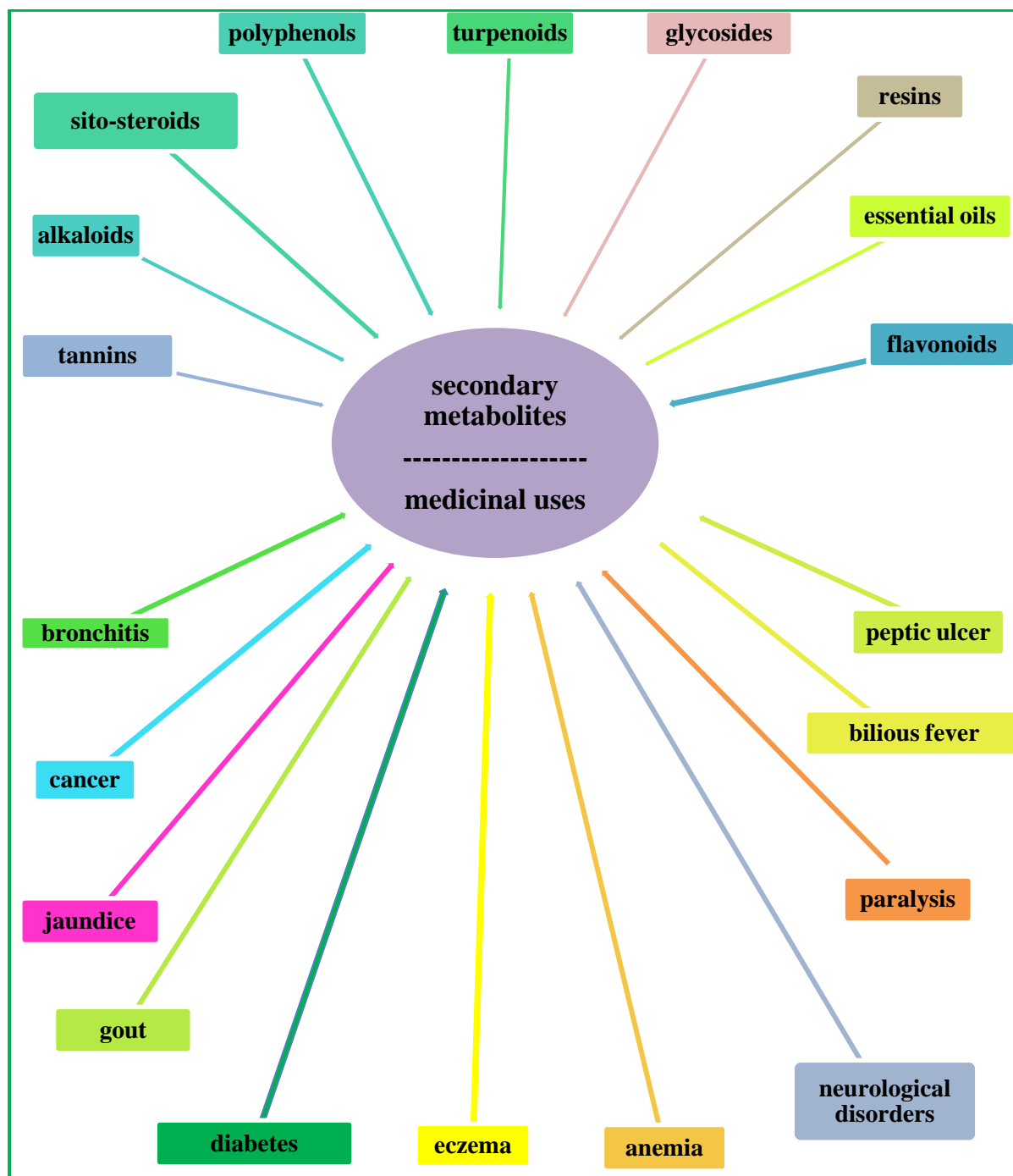


Fig. 2- Secondary metabolites of Trivrit and its medicinal uses

#### 4. Medicinal uses

In Ayurveda, all these parts are used in treatment of various disorders, like jaundice, eczema, anemia, paralysis, bilious fever, peptic ulcer, gout, diabetes, cancer, bronchitis, constipation and neurological disorders [Fig. 2 (lower portion)]. There are several reports about analgesic, anti-inflammatory, stimulant, laxative, anti-bacterial, anti-viral, anti-nephrotoxic, hepatoprotective, immunity-booster, anti-proliferative and anti-oxidant properties of this plant (Tamizhmozhi and Nagavalli, 2017). Phyto-chemicals like flavonoids, tannins, and other aromatic compounds present in the plant act as defense inducers and provide anti-microbial potential to the plant (Arif *et al.*, 2020).

## Conclusion

Numerous reports are in literature for the immense medicinal potential of *O. turpethum* due to its broad therapeutic and pharmacological uses in traditional medicine. After the Covid-19 pandemic, herbal remedies being negligible side-effects has gain more attention in therapeutics. But scientific validation with modern techniques is also needed for these herbal medicines both at *in-vitro* and *in-vivo* levels.

## References

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