A Rare Medicinal Herb Remusatia Vivipara

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Article History:
Received on: 18 Aug 2020
Revised on: 16 Sep 2020
Accepted on: 28 Sep 2020

Keywords:
Remusatia Vivipara,
Medicinal Herb,
Phytochemical Constituents,
Herbal Plants,
Flavonoids,
Terpenoids

ABSTRACT

In this current era, the demand for herbal medicines and products is increasing globally, and herbal medicines are being used traditionally as well as for the modern systems for treatment of various diseases and ailments. There are so many plants that are under research for their potential therapeutic and pharmaceutical applications, and Remusatia Vivipara is one of that rare plants belonging to the family Araceae. There are 105 Genera; more than 3300 species persist locally in tropical and sub-tropical areas and world widely. Remusatia Vivipara is commonly known as “Hitchhiker Elephant ear”. Tribal people also named it as Lalkand. The root juice of Remusatia Vivipara used on the wound to dispel any germ and worms. Remusatia Vivipara has many folkloric applications like for inflammation and arthritis treatment, analgesic, for disinfecting the Genitourinary tract, and treatment of reddish boils. Upon hydrolysis arabinose, galactose, glucose, mannose, xylose, and various uronic acids are the most commonly observed components. This review is an attempt to compile all the aspects and details of plant Remusatia vivipara.

INTRODUCTION

There are so many plants reported for their therapeutic purposes, and Remusatia Vivipara is one of the rare plants having many pharmaceutical purposes belonging to the family Araceae. There are 105 Genera, more than 3300 species, persist locally, tropical areas, sub-tropical areas and world widely. Remusatia Vivipara is commonly known as “Hitchhiker Elephant ear”. Tribal people also named it as Lalkand. The root juice of Remusatia Vivipara used on the wound to dispel any germ and worms (Man-
andhar, 1998). Remusatia Vivipara also reported for its folkloric application like for Inflammation and arthritis treatment, analgesic, for disinfecting Genitourinary tract and treatment of reddish boils (Bhurat et al., 2011c). Upon hydrolysis arabinose, galactose, glucose, mannose, xylose and various uronic acids are most commonly observed components. Mucilage was also isolated from the tubers for pharmaceutical purposes (Bhurat and Barhate, 2013), mainly used parts of the plant are leaves, tubers and corm studied for different activities. The root paste with turmeric is made into an ointment and used in itching, and root juice with cow’s urine is considered to be alexipharmac (Jadhav et al., 2017). The tubers are strongly poisonous but used externally to treat breast mastitis, abscesses and ascariasis (Tang et al., 2010). In this context, we have deliberated various aspects of plant Remusatia Vivipara. Starting from its, Vernacular names, taxonomic classification, occurrence and distribution, Phytochemical constituents, pharmacological activities and Pharmaceutical applications.

**Vernacular Name**

English- Hitchhiker Elephant ear  
Sanskrit- Laksmana  
Kannada- Kadu gadde  
Marakesu; Malayalam- Marachembu, Maratal  
Marathi- Lalkand, Rukhalu  
Nepali- Jalukaa, Kaalo pidaalu (of india, 2020)

**Taxonomic Classification**

Kingdom – Plantae  
Phylum- Tracheophyta  
Class- Liliopsida  
Order- Arales  
Family- Araceae  
Genus- Remusatia (Bhurat et al., 2011b)

**Occurrence and Distribution**

Remusatia (Araceae) mainly consists of 4 different species. Remusatia Vivipara is a rare monsoon plant (Figure 1) found in hilly regions, widely distributed in East and West Africa, Himalayan area, East Asia and Tropical Asia. In India, it is distributed subtropical Himalaya, Khosla hills, Chota Nagpur, Maharashtra and Western Peninsula (Ara and Hassan, 2005).

**Morphology**

It is a monsoon plant grows on the tress.

**Tubers**

They are of 1-2 inches in diameter and 6-12 inches long, clustered depressed, rooting from the crown, short bulbiferous (Mali and Bhadane, 2008) (Figure 2).

**Flowers**

They are very rare and usually grow before the leaves. Peduncle surrounded by seven cataphylls, 6-20 cm long, 5-8 mm diameter. The spathe is tube ovoid, green and about 17 cm long (Marwah et al., 2007) (Figure 4).

**Leaves**

They are peltate, membranous orbicularovate, spathe 4-5 inches long, golden yellow, nerves 3-4 on either side of the midrib and 2-3 from the basal costae (Asha et al., 2013) (Figure 3).

**Corm**

They are thick, pink from outside, pinkish-white within and about 2.5-5 cm in diameter.
Table 1: Chemical Constituents present in Parts of plant Remustia Vivipara.

| Parts Used | Phyto-Chemical Constituents |
|------------|----------------------------|
| Tubers     | Starch, Lectins             |
| Corms      | Phenylpropanoid Glucoside, Coniferen, Caffeyl alcohol, coniferyl alcohol, Methyl proto-taccaoside, Saxifragifolin B, (2E, 4E)-N-isobutyl-2, 4-decadienamide, Dehydrodiconiferyl alcohol-4-β-D-glucoside, (7R,8S)-∆7'-3,3'-dimethoxy-4,7,9,9'-tetrahydroxy-8-O-4'-neolignan-7-O-4'-neolignan-7'-ene. |
| Leaves     | Flavonoids, Terpenoids, Alkaloids and reducing sugars |
| Roots      | Flavonoids, Terpenoids and reducing sugars |

Bhurat et al., 2011 studied the effect of chloroform, ethanol and ether extract of leaves of Remusatia Vivipara on haloperidol-induced catalepsy in mice. The evaluation of catalepsy was done by standard procedure. From results, they found that extract of leaves has cataleptic property maybe by the blockade of dopaminergic receptors or other receptors (Bhurat et al., 2011c).

**Anti-inflammatory activity**

Bhurat et al., 2011 studied the anti-inflammatory activity of chloroform, ethanol and ether extract of leaves of Remusatia Vivipara with the standard drug Diclofenac by Human Red blood corpuscles (HRBC) membrane-stabilizing method. Results showed the significant anti-inflammatory activity of all the extracts (Bhurat et al., 2011d).

**Antimicrobial activity**

Kurdekar et al., 2012 worked on ethanolic, chloroform and ether extract of corm of Remusatia Vivipara by soxhlet and cold percolation method against the five different microorganism species using disc diffusion method. Results showed that any of extract by either method did not show any antimicrobial activity against any one species of microorganism (Kurdekar et al., 2012).

**Depressant activity**

Bhurat et al., 2011 compared the ethanolic extract of tubers of Remusatia Vivipara depression activity with the drug Imipramine and Diazepam. The results of the Force swim test and Tail suspension test showed a significant increase in the activity with extract as compared to the control group and drug-treated group. In the locomotor activity done with Actophotometer, there were no significant changes as compared to the control group or drug-treated group. With the FST and TST results, they concluded that the extract has a depression activity (Bhurat, 2011).

**Antioxidant activity**

Marwah et al., 2007 worked on different edible plant antioxidant activity and some for wound healing activity. Extraction of tubers of Remusatia
Vivipara done by maceration process with chloroform and then followed by aqueous alcohol. For antioxidant activity, they followed the free radical scavenging assay and found the extract of Remusatia Vivipara showed weaker antioxidant activity (Mawah et al., 2007).

Limits growth, motility and invasiveness of human breast cancer cells

Sindhura et al., 2017 worked on the binding of lectin to a specific site, apoptosis, growth inhibition and induction of reactive oxygen species for cell death by the use of different cell lines like MDA-MB-468, MCF-7 and MCF-10A. The results and findings suggested that Remusatia Vivipara Lectin (RVL) showed very high cell surface binding to cell lines, different dose of RVL on different time intervals showed a decrease in cell viability, after treatment with RVL from 0-24 hours microscopic studies showed cell changes, RVL also reported for inducing the apoptosis in both MDA-MB-468 and MCF-7 through oxidative stress or DNA damage. Hence, they concluded that the RVL exerts the cytotoxic effect on human breast cells by inducing apoptotic effects (Sindhura et al., 2017).

Anti-Urolithiatic activity

Anbuselvi et al., Analyzed the extracts of Remusatia vivipara for anti-urolithic activity, and the effect of different extract concentration was applied to measure the dissolution rate, turbidity, nucleation aggregation assay. The extract of Theriophonum minutum and Remusatia vivipara reflected the blocking action in both of nucleation and aggregation to better level and has more remarkable ability to dissolve artificial calcium stones and kidney stones rather than the standard drug (Anbuselvi et al., 2019).

Pharmaceutical applications

Gelling Property

Bhurat et al., 2013 extracted the mucilage from the tubers of Remusatia Vivipara by dissolving in water and precipitating in 90 % alcohol. Six batches of Diclofenac sodium were prepared with different concentration of the mucilage to check the gelling property of it with some other needed substances. The gel with 3.5% mucilage concentration showed the desired gel characteristics and hence used as gelling agent (Bhurat and Barhate, 2013).

Binding property

Shelke et al., 2011 evaluated the mucilage of Remusatia Vivipara by prepared the tablets with different concentration of the mucilage. They found 6% w/w mucilage tablet with the desired characteristics and found that the mucilage of Remusatia Vivipara useful for the preparation of uncoated tablets as binder (Shelke et al., 2011).

SUSPENDING PROPERTY

Bhurat et al., 2011 studied suspending properties of Remusatia Vivipara were evaluated with Acacia at concentrations of 2-6% w/v in cefixime trihydrate suspension. Characterization test was carried out on purified Remusatia Vivipara mucilage. Sedimentation profile, re dispersibility, rheology, pH, particle size analysis, degree of flocculation, stability study were employed as an evaluation parameter for formulation. The results suggested that Remusatia Vivipara mucilage could be used as a suspending agent (Bhurat et al., 2011a).

CONCLUSIONS

This review provides valuable, accessible sources like Vernacular names, taxonomic classification, occurrence & distribution, Phytochemical constituents, pharmacological activities and Pharmaceutical applications of plant Remusatia Vivipara and it will help other researchers for further investigations and exploring properties present in this plant.

Acknowledgement

Authors would like to Thank Management of Shri. Prakashchand Jain College Pharmacy and Research, Palaskhede (Bk.), Jamner and Datta Meghe College of Pharmacy, Wardha (DMIMS) for their constant support.

Funding Support

The authors declare that they have no funding support for this study.

Conflict Of Interest

The authors declare that they have no conflict of interest for this study.

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