EXPLORATION OF KNOWLEDGE ON NEW ETHNO-BOTANICAL VALUE OF JUSTICIA SPICIGERA SCHLTDL.

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ABSTRACT

Since ages, herbs are being used for treating different ailments in different parts of world by different communities. The present ethno-botanical exploration was conducted within two tribal communities of four districts of West Bengal. Survey and extensive interaction resulted in new information about very effective medicinal uses of Justicia spicigera Schltdl. (family- Acanthaceae). The plant is already known in traditional medicine from ancient times and researches have been conducted about its other potential applications. But to the best of our knowledge the information gathered from tribal people is a new one which may put emphasis to explore its significant green chemistry.

KEY WORDS: Justicia spicigera, Tribal people, Documentation

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INTRODUCTION:

Tribal people possess good knowledge about the potential uses of different plants and around them in curing different ailments. Their knowledge of making medicines using natural resources is transferred from one generation to another through oral traditions. Such traditional knowledge may vary from one place to another. Some of this knowledge is not documented even in literature. The main aim of this communication is to explore one of such traditional knowledge about ethno-botanical value of Justicia spicigera Schltdl. (family-Acanthaceae). J. spicigera is an evergreen perennial shrub, native to Mexico and South America (Alonso-Castro et al., 2012; Baqueiro-Peña and Guerrero-Beltrán, 2013; Vega-Avila et al., 2012); grows in wild conditions in India, but known to common people mainly as a garden plant (Tabish, 2016). It is well known in Mexican traditional medicine for healing different diseases such as dysentery, diabetes, leukaemia, anaemia; for relief of pain, wounds, fever, inflammation and others (Baqueiro-Peña and Guerrero-Beltrán, 2014; Zapata-Morales et al., 2016). Several researches have added more information about its further therapeutic values; few reports (Pavón-García et al., 2011; Casanova-González et al., 2012; Baqueiro-Peña and Guerrero-Beltrán, 2014) are there in literature about its other potential applications. Through this endeavor, the authors report about the effective use of J. spicigera by tribal people of West Bengal plains in curing specific problems apart from its known uses. Further the species is taxonomically described to make it familiar to general people.

MATERIAL AND METHODS:

Present plant of interest

Justicia spicigera Schltdl. [family – Acanthaceae; common names – Spicy Justicia, Mexican Honeysuckle, Orange Plume Flower, Muicle, Mohintli, Firecracker Flower, Hummingbird Plant (Euler and Alam, 1982; Anonymous, 2016a); Synonyms: Jacobinia spicigera (Schltdl.) L. H. Bailey, Justicia ghiesbreghtiana Lem., Sericographe mohintli Nees. (Lorenz et al., 1999; Singh, 2011; Anonymous, 2016b); Botanical description – evergreen, perennial shrub (Fig. 1A) of about 1–1.5 meters tall; leaf (Fig. 1B) simple, petiolate, petioles slightly winged, lamina lanceolate, velvety pubescent, bright green, 15–20 cm long and 4–4.5 cm wide, margins undulate, apex acuminate, exstipulate. Flower (Fig. 1E) sessile, bright orange, narrow, tubular, bisexual, zygomorphic (Fig. 1F), 3–3.5 cm long, born in cluster (Fig. 1D) at the end of branch from March to November; sepals 5, gamosepalous, persistent; petals 5, gamopetalous, bilabiate with long slender corolla tube; stamens two, epipetalous, anther is didocious, unequally lobed; carpels are two, united, ovary superior, style simple, slender, terminal, stigma shortly bilobed; Fruit is a capsule.]

Methodology

The present ethno-botanical exploration was conducted mainly within two tribal communities (Saontal and Lodha) of four districts (N- 24th Parganas, Nadia, Hooghly and Burdwan) of West Bengal plains during the year 2014–2015. A door to door survey was done and a total of 1462 persons were interviewed. Thorough discussion was done with several questions involving whether the plant is familiar or not, its description, distribution, uses, method of use, doses, risk factors etc. All the information gathered were noted down, studied and scrutinized later.

RESULTS AND DISCUSSION:

Extensive field survey and interactions especially with senior members revealed that many of them are well familiar with J. spicigera and are aware of its many potential ethnic values that have been already documented in literature. They use this plant from time immemorial to contemporary times also in a regular basis. But the most interesting information for the first time gathered in this survey is that the tribal people use the decoction of J. spicigera by boiling its leaf in water together with some other ingredients for curing cough and cold (as expectorant), catarrhal problems, sore throat, bronchitis and bronchial asthma (as bronchodilator).
Figure 1 (A-F): Justicia spicigera plant with its different parts and leaf decoction

(A) A portion of whole plant with highlighted flower, (B) Single leaf, (C) Leaf decoction, (D) Inflorescence, (E) Single flower, (F) L.S. through flower.

Preparation of medicine –

**Ingredients:** Leaves of *J. spicigera*, ginger (*Zingiber officinale* Roscoe), liquorice (*Glycyrrhiza glabra* L., locally known as yashtimadhu), tailed pepper (*Piper cubeba* L., locally known as kababchini), black pepper (*Piper nigrum* L., locally known as golmarich), and tejpatra (*Cinnamomum tamala* (Ham.) Nees & Eberm).

**Preparation:** For preparation of a tea cup full of decoction, all the ingredients (10–12 full sized leaves of *J. spicigera*, 2–3 gm of graded ginger, 1–2 gm of liquorice, 5–6 crushed tailed pepper and 6–8 crushed black pepper) are boiled in two tea cups of water for 15–20 minutes to reduce it to almost half, then allowed to cool and strained. On boiling with the ingredients, the decoction turns into blood red colour (Fig. 1C). The decoction is taken as oral drink by the patients in tolerable warm condition.

**Dose** – 2–3 tea spoon full, twice or thrice daily before meal for about 2–3 days consecutively as per severity of the problems.

**Biosafety**– According to the tribal people, the decoction is absolutely safe for application for any people of any age – so far, no reports are there to produce any undesirable side effects.

Another species of *Justicia* namely, *J. adhatoda* L. (Synonym: *Adhatoda vasica* Nees, commonly known in English as Malabar nut, Adulsa, Adhatoda, Vasa or Vasaka) is a very well-known plant to common people in our country for curing cough and cold. But according to the tribal people, decoction of *J. spicigera* (they called it as ‘Lal Basaka’) is not only used as a substitute for *J. adhatoda* but
also is far more effective in curing the problems than Adhatoda.

In Mexican traditional medicine *J. spicigera* is well-known for the relief of pain, wounds, fever, inflammation (Zapata-Morales *et al.*, 2016); for healing diseases such as dysentery, leukaemia, anaemia (Baqueiro-Peña and Guerrero-Beltrán, 2014); for treatment of infectious diseases such as gonorrhoea (Cáceres *et al.*, 1995), giardiasis (Peraza-Sánchez *et al.*, 2005); even for some emotional disorders (Cassani *et al.*, 2014). In literature reports about the immuno stimulatory (Del Carmen *et al.*, 2013), anti-diabetic (Andrade-Cetto and Heinrich, 2005; Ortiz-Andrade *et al.*, 2012), antitumor and immunomodulatory (Alonso-Castro *et al.*, 2012), anticancerous (Cáceres-Cortés *et al.*, 2001; Sepúlveda-Jiménez *et al.*, 2009; Vega-Avila *et al.*, 2009; Fernández-Pomares *et al.*, 2010; Jacobo-SalcedoMdel *et al.*, 2011), antihypertensive (Esquivel-Gutierrez *et al.*, 2013), antinociceptive (Zapata-Morales *et al.*, 2013), antioxidant and hepatoprotective (Sepulveda-Jiménez *et al.*, 2009; Baqueiro-Peña and Guerrero-Beltrán, 2013; Awad *et al.*, 2015), antibacterial and antifungal (Vega-Avila *et al.*, 2012) effects of *J. spicigera* are there. Investigation about the non-medicinal use of the plant utilizing its dyeing properties has also been done (Pavón-García *et al.*, 2011; Casanova-González *et al.*, 2012). So, in addition to these, documentation of this tribal knowledge from our country will definitely put emphasis in cultivation and conservation of the plant not only for its ornamental value but also as a very potential medicinal natural resource.

**CONCLUSION:**

Present study is an attempt to provide information regarding tribal knowledge on *J. spicigera* to the future researchers for potential exploration and modernization of this herbal medicine in the field of therapeutic research. Further, proper therapeutic validation, documentation and conservation of elite plants may bring the rich heritage knowledge on indigenous as well as non-indigenous plants into focus more.

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**REFERENCES:**


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