



### *Zanthoxylum armatum*: Versatile Plant Species in Nature

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*Zanthoxylum* species (Rutaceae) are multi-purpose plant species commonly occurring in hot valleys of the Himalayas. In this report, attempts are made to briefly explain about this plant and its variety of uses. *Zanthoxylum* species is a versatile plant species in nature therefore it has a tremendous scope for cultivation and medical research.

#### Introduction

*Zanthoxylum* species (Rutaceae) are popularly known as Bamboo-Leaved Prickly Ash, Nepal Pepper or Toothache tree. It is an erect shrub or a small tree commonly occurring in hot valleys of the Himalayas. The family Rutaceae consists of about 30 species in temperate and tropical parts of the globe, of which 10 species were found in India (Sati et al., 2011a). The *Z. armatum* DC (Syn. *Z. alatum* Roxb.) is the predominant species found in India. It is widely distributed in India from Kashmir to Bhutan upto 2500m altitudes. It also occurs throughout North East India, China, Nepal, Taiwan, Philippines, Malaysia, Pakistan and Japan with varying altitudes from 1300 to 1500 m (Singh and Singh, 2011). It is a sub-deciduous aromatic spiny shrub or small tree up to 5 m height, having 3-9-foliolate leaves with winged leaf-stalk (Figure 1a). Plants flower during March and April. Flowers are small and yellow in colour; while fruits are green in colour (Figure 1b). Matured seeds look shiny black in colour. The plants are commonly known by variety of names in different languages (Table 1). It is versatile plant species useful in various purpose (Bachwani et al., 2012 ) and also having different activities viz., medicinal, snake-bite remedy, insecticidal, insect repellent activity, piscicidal, fungicidal, antibacterial, allelopathy, anti-Inflammatory and antioxidant activities, hepatoprotective and spasmolytic (Table 2). Besides insecticidal properties, about seven insect pests are reported on this plants viz., *Colasposoma semicostatum* (Chrysomelidae: Coleoptera), *Monolepta signata* (Chrysomelidae: Coleoptera), *Platymyterus himalayanus* (Curculionidae: Coleoptera), *Papilio polytes* and *P. polyctor* (Papilionidae: Lepidoptera), *Erthesina fullo* and *Nezara viridula* (Pentatomidae: Hemiptera) (Tara et al., 2011).



Figure 1. A . Leaves of Jaiur (*Zanthoxylum* spp.); B. Green fruits

**Table 1. Vernacular names of *Zanthoxylum* species**

SN	Language	Names
1	English	Bamboo-Leaved Prickly Ash, Nepal Pepper, Prickly Ash, Toothache Tree, Winged Prickly Ash
2	Khasi	Jayur, Jayur-blai ( Jaintia)
3	Mizo	Arhrikreh
4	Manipuri	Mukthruhi
5	Nepalese	Timbur, Timur
6	Sanskrit	Saurabha, tejovati, tumberu, vanaja
7	Hindi	Tejphal, tumru, darmar, trima
8	Bengali	Gaira
9	Kannada	Dhiva, tumburudu, jimmi
10	Malayalam	Tumpunal, tumpuni
11	Oriya	Arhrikreh, ranabelli
12	Marathi	Chirphal, naepaali dhane
13	Tamil	Tumpunalu
14	Telugu	Gandhalu, konda-kasimi, kondakaasimanda
15	Burmese	Gawra Kha Nan Nan, Teza Bo
16	Chinese	Ci Zhu Ye Hua Jiao, Qin Jiao (Taiwan), Zhu Ye Jiao
17	German	Nepalpfeffer
18	Japanese	Fuyu Zanshou, Fuyu-Sansh
19	Korean	Gae San Cho
20	Thai	Mak Kak
21	Laotian	Mad

(Sources: Bachwani *et al.*, 2012; Tara *et al.*, 2011; Singh and Singh, 2011)

Table 2. Different uses and activities of *Z. Armatum*

SN	Uses/ Activities	Against	References
1	Medicinal	Tooth ache, Anthelmintic, Asthma, Bronchitis, Dyspepsia, Cholera, Fever, Fibrosis's, Indigestion, Rheumatism, Skin diseases, Toothache, Varicose veins, rheumatism and skin diseases; chilblains, cramp in the leg, varicose veins and varicose ulcers, low blood pressure, fever, depression and inflammation	Bachwani et al., 2012 <a href="http://www.science20.com/humboldt_fellow_and_science/blog/zanthoxylum_armatum_dc_has_medicinal_value">http://www.science20.com/humboldt_fellow_and_science/blog/zanthoxylum_armatum_dc_has_medicinal_value</a> ; <a href="http://plantsoftibet.lifedesks.org/pages/17087">http://plantsoftibet.lifedesks.org/pages/17087</a>
2	Snakebite remedy	Snake bites	Anonymous, 1978
3	Insecticidal	<i>Aedes albopictus</i> and <i>Culex pipiens quinquefasciatus</i> , <i>Aedes aegypti</i> , <i>Anopheles stephensi</i> and <i>Culex quinquefasciatus</i> , <i>Pieris brassicae</i>	Tiwary et al., 2007; Dubey et al., 1990; Paul and Sohkhet, 2012
4	Insect repellent activity	<i>Allacophora foveicollis</i> , several species of mosquitoes, leeches, tropical hen louse ( <i>Lipeurus lawrensis tropicallis</i> ), <i>Pieris brassicae</i>	Dubey et al., 1990; Das et al., 1999; Nath et al., 1993; Kumar et al., 2003, Paul and Sohkhet, 2012
5	Piscicidal	<i>Heteropneustes fossilis</i>	Ramanujam and ratha, 2008
6	Fungicidal	<i>Aspergillus flavus</i> and <i>A. parasiticus</i>	Dubey et al., 1990; <a href="http://www.stuartxchange.org/Chi-it.html">www.stuartxchange.org/Chi-it.html</a>
7	Antibacterial	<i>Bacillus subtilis</i> , <i>E.oli</i>	Kalia et al., 1999; Bachwani et al., 2012
8	Allelopathy	<i>Triticum aestivum</i> , <i>Hordium vulgare</i> , <i>Brassica compastris</i> , and <i>L. culminaris</i>	Singh et al., 2007
9	Anti-Inflammatory and Antioxidant Activities	Rats	Sati et al., 2011b
10	Hepatoprotective	Rats	Verma et al., 2010
11	Spasmolytic	Rabbits	<a href="http://www.stuartxchange.org/Chi-it.html">www.stuartxchange.org/Chi-it.html</a> .

**Conclusion**

*Zanthoxylum* species is a versatile plant species in nature; therefore it has a tremendous scope for cultivation and medical research. More emphases should be given for medical research for identification and characterization of different molecules present in this plant. Furthermore, attempts should also make to develop and standardize production technology of this plant and their cultivation should be promoted among farmers in suitable agro-climatic zones of the country.

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2. <http://plantsoftibet.lifedesks.org/pages/17087>
3. [www.stuartxchange.org/Chi-it.html](http://www.stuartxchange.org/Chi-it.html)