



## *Alpinia nigra*: The Zingiberaceae Member Seeking Attention

### Ishani Chakrabartty\*

Assistant Professor, Department of Applied Biology, School of Biological Sciences, University of Science and Technology, Meghalaya, India

\***Corresponding Author:** Ishani Chakrabartty, Assistant Professor, Department of Applied Biology, School of Biological Sciences, University of Science and Technology, Meghalaya, India.

**Received:** April 26, 2022

**Published:** May 01, 2022

© All rights are reserved by **Ishani Chakrabartty**.

Traditional medicine, also known as complementary or herbal medicine, comprises of knowledge about medicinal plants and practices relating to their use, paved down as traditional legacy. Using whole plants and plant-parts like leaves, bark, root etc. to treat various ailments is a common practice followed by the people of the North Eastern (NE) region of India, especially the ethnic groups [1]. With the increasing number of new and life threatening diseases in the world, the biggest challenge today is to find the cure. Plant derived drugs from medicinal plants are much preferred than those of synthetic origin due to their lesser side-effects [2]. One such family of medicinal plants is Zingiberaceae. It is commonly known as 'ginger' and exists in fifty genera and 1300 species worldwide, distributed mainly in South and South-East Asia [3]. Most members of this family are ornamental and valued as spice and medicinal plants.

India is one of the richest abodes of Zingiberaceae. The NE region of India houses its greatest abundance, comprising of nineteen genera and about 88 species. These plants are known to synthesize a wealth of chemicals or secondary metabolites that helps to overcome challenges. The largest, most complex and diverse genus of Zingiberaceae is *Alpinia*, with two hundred and thirty species, occurring in tropical and subtropical Asia alone, spreading from Sri Lanka to Western Ghats of India to China, Japan, southeast Asia, the Pacific and Australia [3]. Members of this family are generally aromatic due to their high content of essential oils; hence various parts of these plants are subjected to fractionation process to obtain volatile oils, extracts and bioactive components. A review

on the pharmaceutical potential of this genus has been reported by Ghosh and Rangan [2]. *Alpinia nigra* (Gaertn.) Burt. is a lesser explored, yet medicinally important plant of Zingiberaceae. This plant bears racemose type of inflorescence with a character of flexistyly [4]. The rhizomes are aromatic and contain essential oils. It is a perennial herb and is used for many medicinal purposes. The shoot extracts of *A. nigra* possess anthelmintic properties and are used to treat infections caused by parasitic worms [5]. Phylogenetically, *A. nigra* has been found to be more closely related to *A. galanga* [6]; its rhizomes are similar to that of *A. galanga*, and *Curcuma*.

Essential oil, which is of main consideration in the present study, is also known as volatile oil, ethereal oil or aetherolea, or simply as the "oil" of the source from which they were extracted. It is called "essential" because it carries a distinctive scent or essence, which generally serves as protective agent, attractant for pollination or as repellent for the plant. Essential oil, which is a concentrated hydrophobic liquid, consists of large number of volatile compounds that synergistically contribute to the aroma of the oil [7]. Essential oils are generally extracted by hydro distillation method using Clevenger apparatus; other processes include expression, hot solvent extraction, phytosol extraction, hypercritical carbon dioxide extraction etc. Previous studies showed that essential oil from the rhizomes of *A. zerumbet* has shown antimicrobial activity against Gram positive and negative bacteria as well as fungi [8]. A lot of studies are reported on the phytochemical and physiochemical studies on the different species of *Alpinia* [9] and other species of Zingiberaceae like *Hedychium spicatum* and *Kaempferia galanga* etc. [10], but till date no such study has been reported on *A. nigra*.

The question is WHY NOT? Because it is a bitter reality that the scientific community of the world is not fully aware of the existence and biological potential of a member of Zingiberaceae like *A. nigra*; it is mostly plants like turmeric and ginger which are exploited for their biopharmaceutical potential. The leaves of this plant are immensely rich in essential oil which have an abundance of terpenes and terpenoids. As such, perfumeries and cosmetic industries can utilize this valuable plant for utilization in different products. The central point of this Editorial is that "*Alpinia nigra*" needs attention and preservation – it is growing in the wilderness in different parts of NE India and being utilized locally but there are very high chances that those areas might be cleared for requirement of land and development. Hence, it is high time that the global scientific community takes a step forward in this regard.

### Bibliography

1. Tushar S., *et al.* "Ethnomedical uses of Zingiberaceous plants of Northeast India". *Journal of Ethnopharmacology* 132 (2010) 286-296.
2. S Ghosh and L Rangan. "Alpinia: the gold mine of future therapeutics". *3 Biotech* 3 (2013) 173-185.
3. D Wu and K Larsen. "Zingiberaceae". in: *Flora of China* (2000): 322-377.
4. WJ Kress., *et al.* "The molecular phylogeny of *Alpinia* (Zingiberaceae): A complex and polyphyletic genus of gingers". *American Journal of Botany* 92 (2005) 167-178.
5. B Roy., *et al.* "*Alpinia nigra* (Family Zingiberaceae): An anthelmintic medicinal plant of North-East India". *Advances in Life Sciences* 2 (2012): 39-51.
6. PB Kanjilal., *et al.* "Essential oil composition of leaf and rhizome oil of *Alpinia nigra* (Gaertner) B.L.Burt. from northeast India". *Journal of Essential Oil Research* 22 (2010) 358-359.
7. NS Sangwan., *et al.* "Regulation of essential oil production in plants". *Plant Growth Regulation* 34 (2001): 3-21.
8. CP Victório., *et al.* "Chemical composition of the fractions of leaf oil of *Alpinia zerumbet* (Pers.) B.L. Burt and R.M. Sm. and antimicrobial activity". *Brazilian Journal of Pharmacognosy* 19 (2009): 697-701.
9. PV Kadam., *et al.* "Pharmacognostical evaluation of root of *Alpinia galanga* Willd". *International Journal of Pharmaceutics* 2 (2012): 426-431.
10. AK Indrayan., *et al.* "Comparative chemical study of two varieties of attractive medicinal plant *kaempferia galanga* linn". *Natural Product Radianc* 6 (2014) 327-333.