



# JOURNAL OF BIODIVERSITY AND CONSERVATION

## Medicinal bulbils: Unexplored food and medicinal agents

BL Manjula

Sri Jagadguru Renukacharya College of Science, Arts and Commerce, Race Course Road,

Bengaluru-9, Karnataka, India

Email-Id: manjulasrivats@gmail.com

---

### ARTICLE INFO

---

#### Article History

Received: 5 December 2017

Received in revised form: 28 December 2017

Accepted: 30 December 2017

Keywords: Unexplored plants, pharmaceutical agent, bulbils

---

### ABSTRACT

Searching for new sources for pharmaceutical agents is a tough task. In this aspect, unexplored medicinal plants and their parts play a vital role. Aerial bulbils are such unexplored medicinal agents. Keeping this in view, an attempt has been made to do literature survey on medicinal bulbils. Results revealed that bulbils of about six species are commonly used by tribal communities. This paper highlights the importance of bulbils as medicinal agents.

### INTRODUCTION

Due to improper practices, climatic changes, and sometimes natural causes, pathogenic microbes become resistant to the available drugs. It is a burning issue, and researchers are globally searching for sources to screen and isolate alternate

antimicrobial agents (Kumar et al. 2012; Kumar et al. 2013). Demand for nutraceuticals is also behind it. Since ancient times, plants and their parts have been the major source of food, medicines, and nutraceuticals. A lot of antimicrobial agents and other beneficial components

were isolated from the plants, and now they are common sources. Therefore, researchers are working on the theme of reverse pharmacology. Researchers are going to the tribal communities, collecting knowledge, and then screening the plants, which are mostly unexplored (Kumar et al. 2015). The above facts rely on the importance of unexplored plants and their parts for the development of medicinal agents against lethal diseases and disorders. Keeping this in mind, an attempt has been made to do literature survey and field survey to collect an information on the aerial bulbils of the plants. Aerial bulbils are the stem cells that modify and store primary and secondary metabolites which could be the source for future medicines and nutraceuticals.

### METHODOLOGY

During 2017, a literature survey was made using Google, Flora Books, and college libraries (Kumar et al. 2012; Kumar et al.

2013; Kumar et al. 2015). A field survey was done in nearby areas of Bengaluru. The information was collected and presented here in tabular form.

### RESULTS AND DISCUSSION

From the field survey, it was observed that commonly 6 plants having bulbils on their stem are used as medicinal agents. They mostly belong to the Dioscoreaceae family. The observed species are *Dioscorea alata*, *D. bulbifera*, *D. hispida*, *D. pentaphylla*, *D. pubera* and *Amorphophallus bulbifer*. There are a lot of reports available on tubers of these plants but less reports are available on bulbils. *D. bulbifera* bulbils are used in the treatment of cough, asthma, and skin infections. Details are listed in the Table 1. It was noticed that bulbils also show the browning properties like tubers. Hence, they contain natural phenolic compounds that could be responsible for their therapeutic uses.

**Table 1: Some bulbils (stem modification) bearing plants and their medicinal uses**

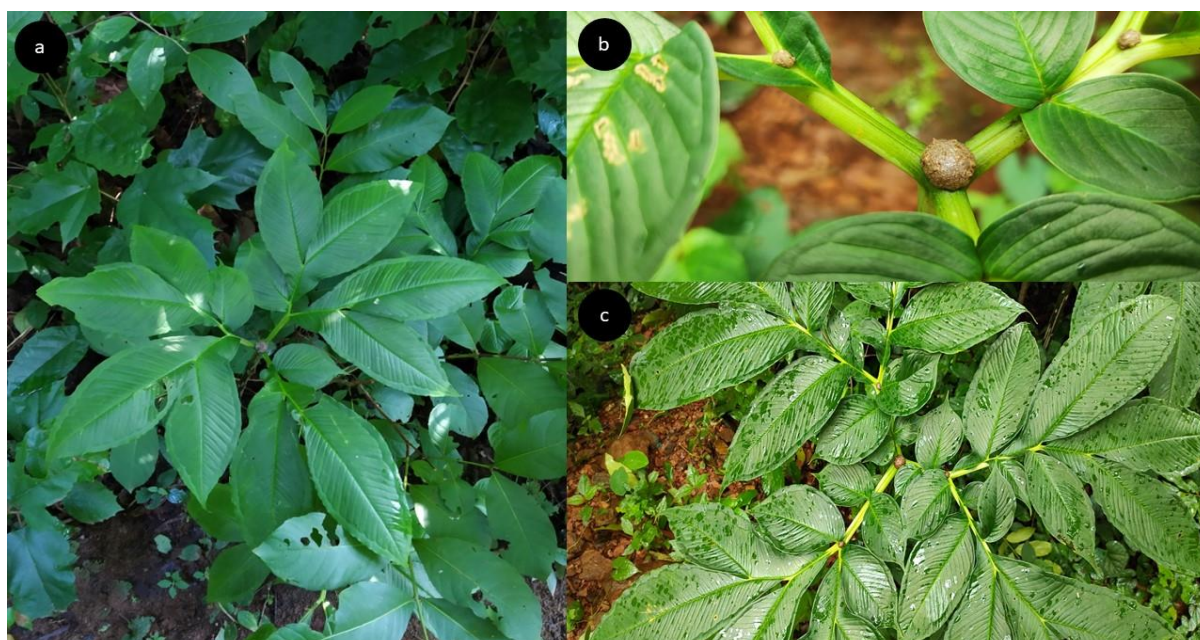
Plant name	Food values	Medicinal values
<i>Amorphophallus bulbifer</i> (Roxb.) Blume (Plate 1)	Rhizome is edible.	Bulbils are used to reduce inflammation.
<i>Dioscorea alata</i> L. (Plate 2)	Bulbils and tubers are edible.	Bulbils are used to get sound health.
<i>Dioscorea bulbifera</i> L.	Bulbils and tubers are	Bulbils are used against

	edible.	stomach pain.
<i>Dioscorea hispida</i> Dennst.	Bulbils and tubers are edible.	Bulbils are used to cure cuts.
<i>Dioscorea pentaphylla</i> L.	Bulbils and tubers are edible.	Bulbils are used as birth control agents.
<i>Dioscorea pubera</i> Blume	Bulbils and tubers are edible.	Bulbils are used as tonic for good health.

Some other researchers have also documented the food and medicinal values of bulbils belonging to *Dioscorea* species. Kumar et al. (2017) have reported that bulbils of many *Dioscorea* species are edible in Odisha state. Kumar and Jena (2017) also have reported that the bulbils of *Amorphophallus bulbifer* (Plate 1) and *Dioscorea* species are used in cough and skin infections.

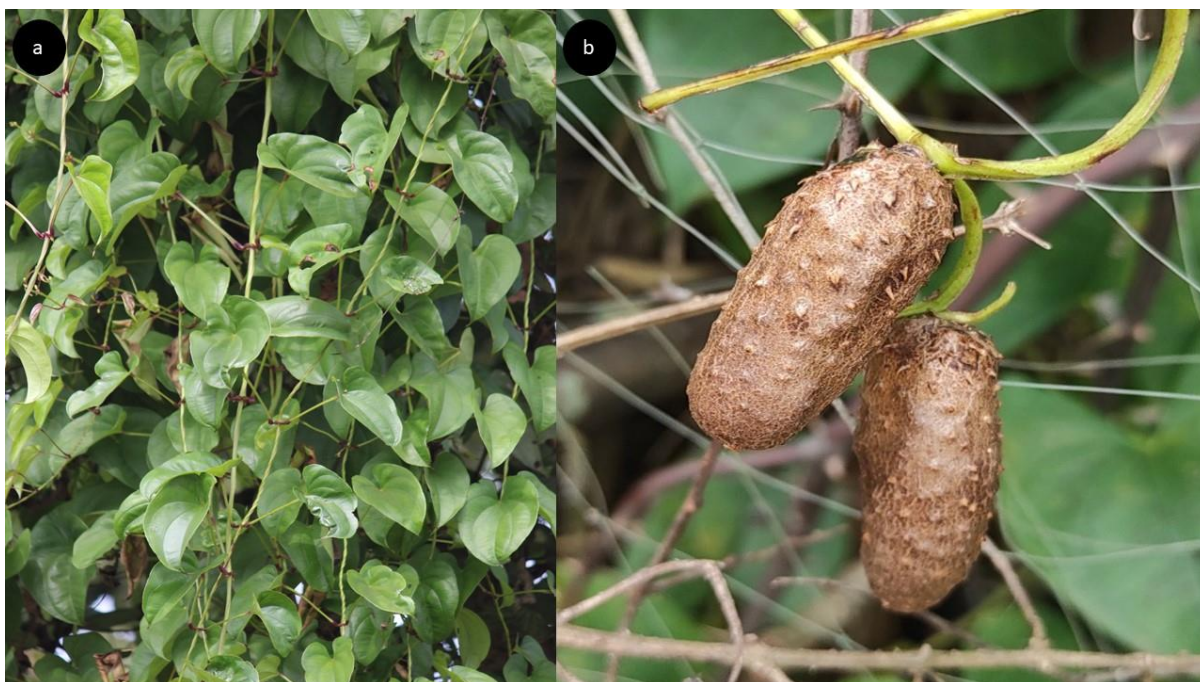
### CONCLUSION

The present study concludes that not only tubers have food and medicinal values but aerial bulbils also have food and medicinal values which are unexplored. Therefore, further research is needed from field to laboratory for the screening of suitable medicinal agents from the above-mentioned species having bulbils.



**Plate 1:** *Amorphophallus bulbifer*, a) Habit, b) Bulbils, c) Leaves





**Plate 2:** *Dioscorea alata*; a) Habit, b) Bulbils

#### REFERENCES

- Kumar S, Tripathy PK and Jena PK. (2012). Study of wild edible plants among tribal groups of Simlipal Biosphere Reserve Forest, Odisha, India; with special reference to *Dioscorea* species. *International Journal of Biological Technology*. 3(1): 11-19.
- Kumar S, Parida AK and Jena PK. (2013). Ethno-Medico-Biology of Ban Aalu (*Dioscorea* species): a neglected tuber crops of Odisha, India. *International Journal of Pharmacy and Life Sciences*. 4(12): 3143-3150.
- Kumar S, Rath SK and Jena PK. (2015). Pita Aalu (*Dioscorea bulbifera* L.) of Simlipal Biosphere Reserve Forest: Diversity and ethnobotanical values with its role in Health Care. **INDUSTRIAL AND ENVIRONMENTAL BIOTECHNOLOGY** edited: Prof. Krishna Pramanik and Dr. Jayanta Kumar Patra, Department of Biotechnology & Medical Engineering, National Institute of Technology, Rourkela. Studium Press LLC, USA.
- Kumar S and Jena PK. (2017). Tools from Biodiversity: Wild Nutraceutical Plants. Ed: James N Furze et al.: Identifying Frontier Research Integrating Mathematic Approaches to Diverse Systems / Sustainability. Springer, Switzerland. DOI: 10.1007/978-3-319-43901-3-9.
- Kumar S, Das G, Shin HS and Patra JK. (2017). *Dioscorea* spp. (a wild edible tuber): A study on its ethnopharmacological potential and traditional use by the tribal people of Simlipal Biosphere Reserve, India. *Frontiers in Pharamcology*. 8:52: doi:10.3389/fphar.2017.0052.