

Chapter 1

Ethnobotanical Assessment of Endangered *Allium* *stracheyi* (Baker): A Lesser Known Species of the Nanda Devi Biosphere Reserve, Central Himalaya, India

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ABSTRACT

Ethnobotanical and economic studies endorse Allium stracheyi Baker, of the Alliaceae family, for future food and health security. The species is important to the socio-cultural, spiritual, and medicinal lives of the indigenous Himalayan people and those in the surrounding urban and peri-urban areas. The species is used by the indigenous Bhotiya people as a flavoring, spice/condiment (Jambu Faran), and a remedy for colds/coughs, jaundice, stomachaches, and various other ailments. A perennial, medicinal, and

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aromatic plant (MAP) species, A. stracheyi is harvested two or three times annually and is categorized as an endemic and endangered species. It has a high value and represents an important cultural element in the lives of indigenous Bhotiya folk living in the mountains of Central Himalaya, India. Among medicinal and aromatic plants, A. stracheyi is an economic indicator of the plant-based economy and tradition of Bhotiya ethnic groups in the Niti and Mana Valleys of Uttarakhand, India.

INTRODUCTION

The high-altitudes of Himalaya are extremely rich in plant life, abounding with a genetic diversity of medicinal plants, a wild relative of crop plants, and other economically-important species. These fragile ecosystems are marked by rareness of topography, climate, soil, vegetation, and ethno-culture (Hajra & Jain, 1983; Negi Tiwari, & Gaur, 1987; Rikhari, Negi, & Singh, 1993; Sundriyal & Sharma, 2016). Uttarakhand state lies in the Central Himalaya, which is rich in biodiversity, as this area exhibits a large number of plants and animals (Rau, 1975). Besides providing essential commodities to the large population living in the vicinity, including wildlife and livestock, a large number of plants have been fulfilling the demands of various industries based on natural products, such as dyes, cosmetics, tannins, resins, and medicinal plants, etc. The high altitude is a rich repository of medicinal plants being used by the indigenous people and the pharmaceutical industry in the form of advanced drugs. While there are innumerable medicinal plants in these ecosystems, *Allium stracheyi* Baker plays a significant role in human life, in general, and among indigenous people, in particular. All major pharmacopoeias of Asia recognize the role of *A. stracheyi* Baker in their holistic medicine system (Lama, Ghimire, & Aumeeruddy, 2001).

Although the wild *A. stracheyi* Baker, according to the Red Data Book, is a threatened species that grows in the alpine areas of the Himalaya (Nayar & Shastry, 1990), it has also been brought under cultivation, but, only on a small scale. The Bhotiya indigenous people of the Central Himalaya use it as a substitute for onions and garlic. Locally, it is known as *Jambu Faran*, which is used to cure a variety of respiratory and gastrointestinal diseases. The plant is used as a green leafy vegetable and its hammered, dry, leaves are used as a spice and condiment in the Himalayan region (Nautiyal, Maikhuri, Semwal, & Rao, 1998). The pungent sulphur smell of the leaves repel insects and is used as an insect repellent in the region. The demand for *A. stracheyi*-based spices has also amplified with the increased human population. The plant is used as a green leafy vegetable in soups and curries. The dry, processed, leaves are the key spice/condiment for Bhotiya's indigenous people's culinary use, and the commercial product is known as *Jambu Faran*. The increased demand has resulted in loss of natural habitat of the plant species, however, the environmental and climatic conditions of this region are very suitable for several lesser known *Allium* species of high economic value. The area is encircled by India's second highest peak, 'Nanda Devi,' situated in the Nanda Devi Biosphere Reserve (NDBR).

The indigenous Bhotiya people are the real custodians of these Himalayan alpine resources. The Bhotiya people of the Garhwal Himalaya inhabit the Chamoli district of the mountainous Uttarakhand state in India. The Buffer zone of NDBR, particularly in the Niti Valley, located 2,000 to 4,000 meters above sea level (m a.s.l.), represents an underprivileged population with small land holdings and a very

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