

Current harvesting practices and quality of bach (*Acorous calamus*) L. Rhizomes traded in the market of Dhamtari Chattisgarh, India

MANISH MISHRA AND P.C. KOTWAL

Asian Journal of Environmental Science (June to November, 2009) Vol. 4 No. 1 : 5-11

See end of the article for authors' affiliations

Correspondence to :
MANISH MISHRA
Faculty of Forestry,
Indian Institute of Forest
Management (IIFM),
BHOPAL (M.P.) INDIA

SUMMARY

The raw material used by Ayurvedic industry is generally procured through market channels and are sometimes found adulterated. The efficient way to determine adulteration is through morphological and organoleptic studies. The objective of this study is to find out prevalent harvesting method of Bach (*Acorous calamus*), malpractices adopted by various stakeholders and ocular analysis of raw (dry) market samples collected from Dhamtari market, Chattisgarh. The observations revealed that rhizomes were collected in the month of October-November at unripe stage from the natural forests. During harvesting, gatherers often collect Kulanjan rhizomes (*Alpinia galanga*) unintentionally, due to similarity in appearance. On the other hand few market traders mix these rhizomes along with genuine material. Unsustainable harvesting also adversely affects the raw material quality. In the present study, major reasons for poor quality are mis-identification of species by gatherers, mixing of old, diseased parts of same species etc. The paper also suggests various ways and means to combat adulteration problems in raw (dry) material trade sector.

Key words :

Adulteration,
Quality, Ocular,
Medicinal,
Harvesting,
Malpractices

Bach (*Acorous calamus*) L. belongs to family-Araceae also called as Indian sweet flag, is a semi-aquatic, perennial, aromatic herb with creeping rhizomes. It is found growing wild and is also cultivated throughout India, ascending to an altitude of 2,200m in the Himalayas. In the Ayurvedic system of medicine, the rhizomes are considered to possess anti-spasmodic, carminative and anthelmintic properties, and, are used for the treatment of a host of diseases such as epilepsy and other mental ailments, chronic, diarrhea, dysentery, bronchial catarrh, intermittent fevers, glandular and abdominal tumors. They are also used to treat kidney and liver troubles, rheumatism and eczema.

The increase in demand of medicinal plants for the commercial herbal medicine sector led to the indiscriminate and unscientific collection without any consideration for the quality of the material collected. In many cases the immature extraction of fruits, rhizomes, tubers etc. have severely reduced the quality as well as quantity of few medicinal species which are on high demand. Numerous studies on different medicinal species have confirmed the same (Mishra, 2000; Prasad *et al.*, 2002; Mishra and Kotwal, 2003; Mishra, *et al.*, 2003; Mishra and Kotwal, 2007). Premature collection, uprooting of whole plant before fruiting and competition among villagers to collect entire produce are the

main reasons for sharp decline in the availability and production of few medicinal plants in the natural forests. Their study suggests that collection before maturation should not be permitted so as to maintain the raw material quality (Prasad *et al.*, 2002; Prasad *et al.*, 2003).

Misidentification of species and mistaken substitution of herbs may result in unexpected adverse impact on human health. The plant material can be mis identified when wild plants are harvested or at the time of the manufacturers bulk purchase (Chan *et al.* 1993; Vanherweghem *et al.*, 1993; But, 1994; Chan *et al.*, 1994; Fugh-Berman, 2000). One tragic example occurred in Hong Kong when the toxic herb Guijiu, which is derived from the root and rhizome of *Podophyllum hexandrum* was found as an adulterant of herb Longdan cao (*Gentiana rigescens*). Subsequent investigations revealed that the adulteration was made by the supplier in mainland China, but no one in the supply chain noticed the error until the occurrence of the adverse event (Chan *et al.*, 1993). In addition, confusing nomenclature or several terms with common, transliterated, latin and scientific names lead to misidentification. Inadvertent substitution of raw materials may cause adverse effects (Tomlinson *et al.*, 2004;

Accepted :
January, 2009