

Chapter 59

Nutraceutical Properties of Important Weeds in India

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ABSTRACT

The group of plants, apart from the forest trees, agricultural, horticultural crop and medicinal plants, certain weed plants also play important role to formulate the qualitative and quantitative food and health supplements. These plants may be very specific in producing certain compound to heal the specific ailment chronically or serve as a good nutritive food supplement. There are numbers of crop species have been fortified with multi-nutrients or with the particular nutrient supplements e.g. Rice, Wheat, Maize, Sweet Potato. Instead, weeds remained underutilized and un-exploited and also treated as unwanted species. The nutritive compounds available in these plants such as polyphenols and vitamins can be the extraction from different plant portion to formulate the fortified food or curing medicine. The weed species prevailing in the nature are one of the major sources of dietary and health supplements for humans and animals since past i.e. Amaranthus lividus, Chenopodium album and many more weed species. There is still much to explore the Indian ecologic components present in wild form of flora. Hence, this chapter will majorly contribute to highlight nutritive nutraceutical and edible weeds prevailing in Indian ecosystems.

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INTRODUCTION

Nutraceuticals is the science that deals with the bio active or chemically defined substances isolated from plants or food, prepared, marketed and sold in the medicinal form / food-format of granules, powder, tablet, capsule, liquid or gel and taken in a measured unit quantities. The Indian definition as per Food Safety and Standard Authority (FSSA) of India Act passed in 2010 suggested that “A traditional medicine is not a part of nutraceuticals. The specially formulated or processed food products satisfy particular diet requirement which exist because of a physical or physiological condition or specific disease and disorder”. Nutraceuticals, foods or food components that help in prevention or treatment of disease, which is made from herbal/botanical raw materials.

The term nutraceuticals attempt to fulfill desirable food & health supplement in a concentrated form (Table 1). There are two terms which elaborate nutraceuticals:

- Functional food
- Dietary supplements

The term functional food is used when food material have been either enriched or fortified to restore preprocessed nutrient levels, to improve nutritive values of nutrient-deficient food (calcium in orange juice) or to resolve public health issues (vitamin D in milk, iodized table salt).

In contrast to, the dietary supplement is another major class of nutraceuticals which includes concentrated forms of food-derived nutrients. Dietary supplements are not intended to be food replacements, but are designed to be taken as addition to daily food consumption for added nutrients or perceived health benefits.

Table 1. Varying definitions and regulatory bodies for nutraceuticals around the world

Country	Labeled as	Definition	Regulatory Body
United States of America	Dietary Supplements	Any of following which have a beneficial nutritional effect- <ul style="list-style-type: none"> • Vitamins • Minerals • Botanicals and their extracts • Amino Acids • Concentrates and Extract 	Food and Drug Authority
European Union	Food Supplements	<ul style="list-style-type: none"> • Concentrated sources of nutrients • Other substances with a beneficial nutritional effect 	European food safety authorities
India	Foods for special dietary use	<ul style="list-style-type: none"> • Plants/botanicals: Whole or extracts • Minerals, Vitamins, Amino Acids, Enzymes • Substances of animal origin 	Food safety and standards act
Japan	Food for specific health use	Any food that can provide and /or supplement any of the following <ul style="list-style-type: none"> • Nutrition • Sensory Satisfaction • Beneficial physiological effects 	Japan health and nutrition food association
China	Health foods	Any food that: <ul style="list-style-type: none"> • Should be suitable for specific group(s) of people • Should also be able to adjust body functions and • Should not aim at curing diseases or cause acute, sub acute or chronic harm to the body 	State food and Drug Administration

Source: Frost & Sullivan.

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