Biodiversity - A Necessity for Nutritional and Culinary Diversity

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Around the world, everyone knows about the popularity of the Indian cooking. In all the corners of the world, one can find fine restaurants that offer delicious Indian food made up of diverse raw materials mixed or blended with some unique spices like turmeric, cumin, cardamom, chilies and many more. There are so many Indian restaurants established in every part of the world, and they are attracting the worldwide customers with its popularity and delicious food taste. The culinary diversity of India is characterized by the use of various spices, herbs and other vegetables and sometimes fruits grown in India along with the widespread practice of vegetarianism across many sections of its society. Each family of Indian cuisine is characterized by a wide assortment of dishes and cooking techniques. As a consequence, it varies from region to region, reflecting the varied demographics of the ethnically diverse Indian subcontinent. India's biodiversity, religious beliefs and culture have played an influential role in the evolution of its culinary diversity. However, cuisine across India also evolved due to the subcontinent's large-scale cultural and agricultural interactions with ancient Greece, Persia, Mongols and West Asia, making it a unique blend of various cuisines across Asia. The colonial period introduced European biodiversity and cooking styles to India adding to the flexibility and diversity of Indian cuisine. Indian cuisine has a remarkable influence on cuisines across the world, especially those from Southeast Asia.

Along with tantalizing taste of the Indian food, it is important to note that nutrition is an important environmental factor that influences health and well-being. Consumption of diets adequate both in quantity and quality is a prerequisite for the maintenance of good nutritional status. Agricultural production that determines food availability is, therefore, an important determinant of food consumption, though not a critical one if food imports can be assured. Self-sufficiency in food production is of particular importance for developing countries, not only because they tend to have high rates of population growth, but also because such countries have malnutrition as a public health problem. The quantitative aspects of food production are undoubtedly of primary concern, but it cannot be forgotten that the qualitative aspects are extremely important, if optimal nutrition is to be provided. The inter-phase between agriculture and nutrition, therefore, acquires considerable practical importance.

Since ages, the best part of the Indian cooking is its blending of spices and locally available raw materials. In addition to it, indigenous knowledge about the high value crops like Amaranthus (Ramdana), Cassava, Sweet Potato, Yam etc, which are used in stress and to energize the body, are some of the samples from the vast array of the biodiversity for which humans gathered the usable information. Moreover, most of the Indian spices are having some recognized/felt/fine medicine values. Clove is the best example for its medicated values for digestion and also this one knows as relief from toothaches. Ginger is also used for cough and cold and as well there are many more medicines like Fenugreek leave are used in treatment of indigestion. So, most of the Indian recipes are not only having a delicious taste, but also they are having nutritive and medicinal values. When it comes to the style of the Indian cooking, there are so many available in the present life. However, in every style of Indian cooking same ingredients are

used but in different styles. Every style has its own unique signature. For example, when it comes to Punjabi style most of them are using butter or ghee.

The staples of Indian cuisine are rice, atta (whole wheat flour), and a variety of pulses, the most important of which are masoor (lentil), channa (bengal gram), toor (pigeon pea), urad (black gram) and mung (green gram). Pulses may be used whole, or dehusked, for example dhuli moong or dhuli urad, or split. Pulses are used extensively in the form of dal (split). Some of the pulses like channa are also processed into flour (besan).

Most Indian curries are cooked in vegetable oil. In North and West India, peanut oil has traditionally been most popular for cooking, while in Eastern India, mustard oil is more commonly used. Coconut oil is used widely along the western coast and South India. In recent decades, sunflower oil and soybean oil have gained popularity all over India. Hydrogenated vegetable oil, known as Vanaspati ghee, is also a popular cooking medium that is replacing Desi ghee or clarified butter (the milk solids have been removed).

The most important/frequently used spices in Indian cuisine are chilli pepper, black mustard seed (rai), cumin (jeera), turmeric (haldi), fenugreek (methi), asafoetida (hing), ginger (adrak), coriander (dhania), garlic (lassan) etc. Popular spice mixes are garam masala, which is usually a powder of eight or more dried spices, commonly including cardamom, cinnamon and clove. Each region, and sometimes each individual chef, has a distinctive blend of garam masala. Goda masala is a popular sweet spice mix in Maharashtra. Some leaves are commonly used like tejpatta (cassia leaf), coriander leaf, fenugreek leaf and mint leaf. The common use of curry leaves, curry roots is typical of all South Indian cuisine. In sweet dishes, cardamom, saffron, nutmeg, and rose petal essences are seasoned.

Popularity and production of an innumerable number of sweet dishes, made up of milk and milk products, plant based products, fruits and some vegetables, is the source of livelihood for a large number of citizens, who directly or indirectly are attached to this traditional trade. The popularity of Petha of Agra, Coconut burfi, besan laddo and so on are only some of the examples to stress upon the fact that locally available biodiversity is part and partial of our sweet heritage.

Along with the food items, beverages play an important role in providing diversity to the Indian cuisines. While masala tea is a staple beverage across India, Indian filter coffee is especially popular in southern India. Tea is a staple beverage throughout India; the finest varieties are grown in Darjeeling and Assam. It is generally prepared as masala chai, wherein the tea leaves are boiled in a mix of water, spices such as cardamom, cloves, cinnamon, and ginger, and large quantities of milk to create a thick, sweet, milky concoction. Different varieties and flavors of tea are prepared to suit different tastes all over the country. Another popular beverage, coffee, is largely served in South India. One of the finest varieties of *Coffea arabica* is grown around Mysore in Karnataka. Indian filter coffee, or kafee, is also especially popular in South India. Other beverages include nimbu pani (lemonade), lassi, chaach, badam doodh (almond milk with nuts and cardamom), sharbat and coconut water. In Southern India there is a beverage served cold known as Panner Soda or Gholi Soda which is a mixture of carbonated water, rose water, and sugar. Another beverage from the South is rose milk, which is served cold. Many flowers and fruits found in remote places, on high altitudes and in deep forests are used to prepare different kinds of beverages, which have high nutritive and medicinal values. These under-utilized flowers and fruits are a source of livelihood for the collectors and peasants residing in remote places. India also has many indigenous alcoholic beverages, including palm wine, fenny and Indian beer. There is also bhang, prepared using cannabis, and typically consumed, especially in North India, during Holi and Vaisakhi. However, the practice of drinking a specific beverage with a meal, or wine and food matching, is not traditional or common in India.

The ITK about pickles and chutneys in India is so deep rooted and perfect that each and every edible fruit, leaf, flower etc can be converted into tasty preparations. These unique blends vary from village to village, state to state and even house to house. The women folk of India is very critical in selecting the best raw material for pickles and chutneys. They not

only have knowledge of the locally available biodiversity which can be used, but also they have enough knowledge for its processing and preservation.

Linkage between biodiversity and culinary diversity

The Indian economy has recently grown at historically unprecedented rates and is now one of the fastest-growing economies in the world. Real GDP per head grew at 3.95% a year from 1980 to 2005, and at 5.4% a year from 2000 to 2005. Real per capita consumption has also grown rapidly, at 2.2% a year in the 1980s, at 2.5% a year in the 1990s, and at 3.9% a year from 2000 to 2005. Although the household survey data show much slower rates of per capita consumption growth than do these national accounts estimates, even these slower growth rates are associated with a substantial decrease in poverty since the early 1980s. Yet, per capita calorie intake is declining, as is the intake of many other nutrients; indeed fats are the only major nutrient group whose per capita consumption is unambiguously increasing. Today, more than three quarters of the population live in households with per capita calorie consumption below 2,100 per day in urban areas and 2,400 per day in rural areas - numbers that are often cited as "minimum requirements" in India.

One of the major reasons which can be attributed to such unique pattern, is overdependence of the rural masses on a few high yielding varieties of specific crops. On one hand, it has increased manifold the production of certain crops like wheat, rice etc but on the other it resulted into the loss of locally adapted, preferred and consumed biodiversity or more precisely agro-biodiversity. In a study conducted by the prestigious MSSRF, Chennai at Wayanad district of Kerala indicates that the local communities like Paniya, Kuruma and Kattunaikka use about 222, 88 and 177 different biodiversity respectively, in their food including leafy vegetables, tubers, mushrooms, crabs, fruits and seeds, honey, fishes etc. This indicates the depth and vastness of the knowledge for survival through natural sources and also the culinary diversity available with the remote and traditional communities. Also, the district was used to be a habitat for wide genetic diversity of traditional landraces of cultivated food crops and plantation crops until 30-40 years ago. About 70-80 rice varieties, which suited to the land classification and agro-climatic peculiarities of the district were in cultivation. The rice genetic diversity was known for its specialty having aromatic and medicinal properties; but the genetic base of this crop has now been narrowed down to around 15-20 varieties. The farmers verify over 90% of loss in the traditional varieties of pepper, as they had more than 100 such varieties in cultivation in the past which has now reduced to around 10 -20 varieties.

The changing food habits and over-dependence on limited species is directly or indirectly affecting our traditional knowledge for the culinary diversity. With the passage of time, the recipes known today may be forgotten and we will lose the still non-estimated wealth and treasure available in the form of recipes. Thus, it is high time to act in a direction to conserve our biodiversity along with the traditional and indigenous technical knowledge associated with it. The task is herculean, but with intricate planning, promotional policies and positive attitude to work can yield the desired results.

Task ahead

Some key issues and suggestions for conserving biodiversity for culinary diversity are outlined below.

- Nutrition Education and Training.
- Mass Nutrition Awareness Campaigns.
- Development, production and distribution of nutrition education/training material.
- Training in Home Scale Preservation of Fruits and Vegetables and Nutrition.
- Development and Promotion of locally available Nutritious Foods.
- Food Analysis and Standardization.
- Survey and Research for identification and documentation of Indian Culinary Diversity.
- Promotional Campaigns for local cuisines.
- Development of models for Public-Private Partnerships for promotion of Indian Culinary diversity.