

Research Communication

Harnessing the economic potential of Orchids in Uttarakhand

Ajay Kumar Singh, Rakesh Mer and C. Tiwari

KVK, Jakhdhar (GBPUA&T, Pantnagar). Rudrapur-246439. Uttarakhand.

Orchids are most fascinating among all the ornamentals. The range of diversity in the form of flower colour, size, shape and long vase life helped these exquisite flowers to be one of the leading cut flowers at the global level. India has great potential of becoming a major exporter of orchids at global level. Its main strength lies in its rich genetic resources, varied climatic zones, availability of trained manpower in the field of floriculture, lesser cost of production in comparison to the other major orchid growing countries. However, till date India has failed to make any impact in this sector.

The region falls under high rainfall zone and climate ranges from subtropical to alpine. The region is characterized by difficult terrains, wide variation in slopes and altitude, land tenure system and cultivation practices. The transport and communication system is poorly developed. As a result, majority of area in the region still remains inaccessible. Majority of the population is dependent on agriculture, horticulture and allied land based activities. The region once richly endowed with luxuriant forest growth and rich crop genetic diversity is denuded due to human interference and adoption of unscientific land use systems. Western Himalayas is richly endowed with orchid genetic resources. The region is home to about 250 species of orchids, out of total 1250 species in India. The region is not only rich in terms of number of species but more importantly many of them rank at the top of the list of ornamentally important ones. However, this natural orchid wealth of the country as a whole and of this region in particular, is yet to be judiciously utilized and managed to harvest economic benefit. Moreover, there is always the danger of losing most of the valuable orchid wealth, unless scientific conservation measures are taken along with proper utilization. This is evident from the very painful fact that many of these beautiful, once abundant species, are now rare and some of them are already no more visible in the wild.

Strength

Strength of the region lies in the following

- Rich gene pool.
- Natural habitat of many ornamental species.
- Superiority of many of the species in terms of desirable horticultural traits.
- Suitable agro climatic conditions.
- Scope for expansion of area in tribal tracts.
- Fast growing domestic market and export demand.
- Recent liberal Government policies in the floriculture sector.
- Low labour cost in comparison to the European countries.
- Central geographic location to the major flower consumption centers.
- Availability of trained scientific manpower and good institutional infrastructure.

Shortcomings

Despite its immense genetic richness and other certain advantages, the orchid trade in particular and floricultural trade in general, from the Western region could not develop upto the desired level due to the following shortcomings.

- Lack of interest and unawareness.
- Lack of scientific characterization, evaluation and utilization of available resources.

- Non-availability of quality planting materials of internationally accepted varieties/hybrids.
- Non-availability of quality planting material on mass scale.
- High initial investment and maintenance cost.
- Very long gestation period in case of orchids.
- Lack of Scientific information on agro-techniques.
- Lack of information on integrated pest management.
- Inadequate information on post harvest management practices.
- Weak marketing linkages.
- Lack of information on economics of orchids.
- Lack of suitable storage, packaging and transport facility.
- Inadequate research and extension support.

Commercially Potential Orchids of Western Himalaya

The region is endowed with nature's bounty; all the three types, viz., warm growing, intermediate type and cool growing orchids can be grown in this region at different altitudes. These facts offer this region a significant advantage over the traditional centers of orchid production world wide which can grow either warm growing or intermediate or cool growing types but not the all.

Orchids for Cut Flower

In the temperate type or the cool growing type, *Cymbidiums* have the greatest potential in the region. *Cymbidiums* are the front runner among all orchids in the global cut flower trade. Among all Orchid species used as cut flowers, *Cymbidiums* occupies the foremost position. It fetches highest price per flower on the international market. The international flower trade is solely based on the modern hybrids bred from 5 or 6 larger flowered species found in the so called Himalayan Orchid belt at elevations between 1000 and 2000 meter. The flowers of the wild species are not suitable for international trade due to their inferiority in terms of floral form and colour, keeping quality and ability to travel long distances from farm to the auction centers. *Cymbidiums* grow vigorously and produce export worthy flowers in a relatively narrow temperature regime (10-25⁰c). For production of export worthy spikes, plants should be protected from all sorts of weather damage, at least at the time of flowering. *Cymbidiums* will be sold as whole cut spike or as individual blooms. Standard spike should not contain less than 8 flowers per spike. In the warm category the most suitable are *Dendrobiums*, *Vandas*, *Arandas*, *Arachnis*, etc. These are the most popular cut flower sprays world wide. The lower altitudes in this region are just ideal for many of these hybrids.

Potted Orchids

In the present scenario beside production of cut flowers, orchids also have great potential as potted ornamentals. Many of the Indian species, northeastern Himalayan species in particular, are suitable for their direct use as high value potted novelty. Unfortunately, this still remains a gray area and suffers from lack of attention and realization of its tremendous potential. Genus *Aerides*, *Arachnanthe*, *Bulbophyllum*, *Calanthe*, *Coelogyne*, *Cymbidium*, *Dendrobium*, *Eria*, *Phaius*, *Phalaenopsis*, *Pleione*, *Rhyncostyles*, *Vanda* were found to possess the desirable characteristics as pot plants. The number will be higher if hanging types are also considered.

Orchids as Traditional Medicine

History of orchids probably started with their use as medicinal plants. As early as 200 BC the Chinese pharmacopoeia - "*the Sang Nung Pen Tsao Ching*", mentions *Dendrobium* as

a source of tonic, astringent, analgesic, anti-inflammatory substances. In Europe, in the medieval belief of the doctrine of signatures, tubers of some of these plants were thought to confer virility and potency. In India also orchids have been in use in indigenous system of medicines since Vedic period. "Ashtawarga" – a group of 8 drugs in Ayurvedic system which are used for preparation of tonics, such as 'Chyavanprasa', consists 4 orchid species, viz *Malaxis muscifera* (Lindl.)Kuntze, *Malaxis acuminata* D.Don, *Habenaria intermedia* D.Don and *Habenaria edgeworthii* Hook. F. Around 40 other species are being used in indigenous medicine system. Important orchid genera that are being used as medicinal sources are *Acampe*, *Bulbophyllum*, *Calanthe*, *Coelogyne*, *Cymbidium*, *Cypripedium*, *Dactylorhiza*, *Dendrobium*, *Epipactis*, *Eria*, *Eulophia*, *Filckingeria*, *Habenaria*, *Liparis*, *Luisia*, *Malaxis*, *Pecteilis*, *Pholidota*, *Rhynchostylis*, *Satyrium* and *Vanda*. Scientific studies on the medicinal properties of these orchids and their utilization should be taken as priority area of research.

Strategies

To harvest the full potential of the orchid culture as a highly profitable enterprise in India as a whole and in the north east in particular proper research support is very essential. For resolving major constraints in production of orchids, mission mode approach is essential in the following areas.

- Collection, characterization, evaluation, conservation and improvement.
- Systematic breeding and production of commercial varieties and hybrids of superior quality.
- Standardization of agro-techniques for commercial cultivation and package of practices for post-harvest management for domestic and export markets.
- Production of quality planting material.
- A repository of information and a centre for training.