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Biodiversity conservation and enhanced medicinal properties in Asparagus racemosus Willd

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The natural resources for medicinal plants have unscientifically been exploited forcing rapid depletion in their genetic diversity and biodiversity. Moreover, renewed global interest in herbal medicines may further deplete medicinal plant wealth, as about 95 % collection of medicinal plants for pharmaceutical preparation is being carried out from natural forests. *Asparagus racemosus* Willd, a member of family Liliaceae, is one of 32 plant species that have been priorities for cultivation and conservation by the National Medicinal Plant Board of Government of India. Extremely limited research has been carried out on genetic improvement and selection of desired types with higher root production and saponin content, a basic ingredient of medicinal value. The saponin not only improves defense mechanisms and controls diabetes but the roots of this species promote secretion of breast milk, improve lost body weight and considered as an aphrodisiac. It was emphasized to select desired genotypes with sufficient genetic diversity for important economic traits. The evaluation of 20 seed sources of *Asparagus racemosus* assembled different geographical locations of India revealed high degree of variability for traits of economic importance. The maximum genotypic and phenotypic variance was observed for shoot height among shoot related traits and root length among root related traits. The shoot height, genotypic variance, phenotypic variance, genotypic coefficient of variance, phenotypic coefficient of variance were recorded to be 231.80, 3924.80, 61.26 and 1037.32, respectively, where those for root length were 9.55, 16.80, 23.46 and 41.27, respectively. Maximum genetic advance and genetic gain were obtained for shoot height among shoot-related traits and root length among root-related traits. Index values were developed for all seed sources based on four most important traits and Pantnagar (Uttarakhand), Jodhpur (Rajasthan), Dehradun (Uttarakhand), Chandigarh (Punjab), Jammu (Jammu and Kashmir) and Solan (Himachal Pradesh) were found to be promising seed sources.

Biography

Ashok Kumar is a Scientist and Head of Genetics and Tree Propagation at Forest Research Institute, India. He has received numerous in-service awards/ recognitions like Brandis Prize, Dr. Y S Rao Forestry Research Award in the national and international level. His research interests are forest genetics, agriculture, genetics and plant breeding.

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