

Biodiversity conservation and enhanced medicinal properties in *Asparagus racemosus* Willd

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Abstract

The natural resources for medicinal plants have unscientifically been exploited forcing express depletion in their genetic diversity and biodiversity. Moreover, renewed global interest in herbal medicines may further reduced medicinal plant wealth, as about 95 % collection of medicinal plants for pharmaceutical composition is being carried out from natural forests. *Asparagus racemosus* Willd, a member of family Liliaceae, is one of 32 plant species that have been precedence for cultivation and conservation by the National Medicinal Plant Board of Government of India. Extremely limited research has been carried out on genetic development and selection of desired types with elevated 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, better lost body weight and considered as an aphrodisiac. It was emphasized to choose desired genotypes with sufficient genetic diversity for important economic traits. The evaluation of 20 seed sources of *Asparagus racemosus* collected different geographical locations of India revealed high degree of variability for traits of economic deviation. The maximum genotypic and phenotypic variance was noticed for shoot height among shoot related traits and root length among root related traits. The shoot height, genotypic variance, phenotypic variance, genotypic coefficient of deviation, 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 acquired for shoot height among shoot-related traits and root length among root-related traits. Index values were developed for all seed origins based on four most important traits and Panthagar (Uttarakhand), Jodhpur (Rajasthan), Dehradun (Uttarakhand), Chandigarh (Punjab), Jammu (Jammu and Kashmir) and Solan (Himachal Pradesh) were found to be promising seed origin.

Asparagus racemosus Willd. (Asparagaceae) is an vital medicinal plant of tropical and subtropical India. Its medicinal utilization has been mentioned withinside the Indian and British Pharmacopoeias and in conventional structures of medication which includes Ayurveda, Unani and Siddha. *Asparagus racemosus* is especially regarded for its phytoestrogenic properties. With an growing awareness that hormone alternative remedy with artificial oestrogens is neither as secure nor as powerful as formerly envisaged, the hobby in plant-derived oestrogens has multiplied incredibly making *Asparagus racemosus* mainly vital. The plant has been proven to resource withinside the remedy of neurodegenerative issues and in alcohol abstinence-prompted withdrawal symptoms. In Ayurveda, *Asparagus racemosus* has been defined as a rasayana herb and has been used considerably as an adaptogen to growth the non-precise resistance of organisms towards a number of stresses. Besides use withinside the remedy of diarrhoea and dysentery, the plant additionally has powerful antioxidant, immunostimulant, anti-dyspepsia and antitussive effects.

These consist of an incomplete expertise approximately the interaction/synergy among *Asparagus racemosus* and different plant materials in polyherbal formulations; loss of records concerning the mode of motion of the diverse materials of *Asparagus racemosus*, etc. Consequently, we've recommended a structures biology technique that consists of metabolite profiling, metabolic fingerprinting, metabolite goal evaluation and metabonomics to allow in addition research.

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