

Genetic Diversity Analysis in Embelia Ribes by RAPD Markers

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Abstract : Embelia ribes Burm.f (Family-Myrsinaceae) commonly known as Vidanga or Baibirang, is one of the important medicinal plants of India. The seed extract is reported to be antidiabetic, antitumour, analgesic, anti-inflammatory, antispermato-genic, free radical scavenging activities and widely used in more than 75 Ayurvedic commercial formulations. Among the 100 different species of Embelia, E. ribes is considered as a major source of Embelin, a bioactive compound. Because of high demand and low availability, the seeds of E. ribes are substituted with many cheaper alternatives. Therefore, the present study of RAPD-PCR analysis was undertaken to develop molecular markers for identification of E. ribes. A total of 13 different seed samples of Embelia were collected from different agro-climatic regions of India. The seeds of E.ribes were collected from Kalpetta, Kerala and three different seed samples were collected from traders of Odisha, Madhya Pradesh, Maharastra. The other nine seed samples were collected from local traders which they have collected from different regions of India. Genomic DNA was isolated from different seed samples E. ribes and RAPD-PCR was performed on 13 different seed samples using 47 random primers. Out of all the primers, only 22 primers produced clear and highly-reproducible banding patterns. The 22 selected RAPD primers generated a total of 280 alleles with an average of 12 alleles per primer pair. In the present study, we have identified three RAPD-PCR markers i.e. OPF5_480 bp, OPH11_520 bp and OPH4_530 bp which can be used for genetic fingerprinting of E. ribes. This methodology can be employed for identification of original E. ribes and also distinguishing it from other substitutes and adulterants.

Keywords : Embelia ribes, RAPD-PCR, primers, genetic analysis

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