

Identification of Species-Diagnostic Inter Simple Sequence Repeat Markers for Ten *Phyllanthus* Species

Sunil Kumar Senapati^{a,*}, Subhashree Aparajita^b, and Gyana Ranjan Rout^c

^a MITS School of Biotechnology, Infocity, Patia, Bhubaneswar-24, Orissa, India.

E-mail: sunilsenapati007@gmail.com

^b Regional Plant Resource Center, Nayapali, Bhubaneswar, Orissa, India

^c Orissa University of Agriculture and Technology, Bhubaneswar-751003, Orissa, India

* Author for correspondence and reprint requests

Z. Naturforsch. **66c**, 167–172 (2011); received April 6/September 20, 2010

Phyllanthus has been widely used in traditional medicine as an antipyretic, a diuretic, and to treat liver diseases and viral infections. Correct genotype identification of medicinal plant material remains important for the botanical drug industry. Limitations of chemical and morphological approaches for authentication have generated the need for newer methods in quality control of botanicals. In the present study, attempts were made to identify species-diagnostic markers for ten *Phyllanthus* species using the inter simple sequence repeat-polymerase chain reaction (ISSR-PCR) fingerprinting method. PCR amplification using seven ISSR primers resulted in significant polymorphism among the populations from different species. *P. angustifolius* and *P. urinaria* showed monomorphic frequency of maximum (63.88%) and minimum (20.64%), respectively. Seventeen species-diagnostic markers were identified for seven species (*P. acidus*, *P. emblica*, *P. fraternus*, *P. urinaria*, *P. rotundifolius*, *P. amarus*, and *P. angustifolius*) while no marker was detected for *P. reticulatus*, *P. nivosus*, and *P. virgulatus*. A maximum of six species-diagnostic markers were identified for *P. acidus* and a minimum of only one of 755 bp was available for *P. amarus*. Among the seventeen markers, nine were present in all individuals of particular species. The species-specific differences in fragment numbers and sizes could be used as diagnostic markers to distinguish the *Phyllanthus* species quickly.

Key words: ISSR, *Phyllanthus*, Species-Diagnostic Markers