

AFLP markers for identification of *Swertia* species (Gentianaceae)

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ABSTRACT. The genus *Swertia* is well known for its medicinal properties, as described in the Indian pharmacopoeia. Different members of this genus, although somewhat similar in morphology, differ widely in their pharmacological and therapeutic properties. The most important species of this genus, with maximal therapeutic properties, is *S. chirayita*, which is often adulterated with other less-potent *Swertia* spp. There is an existing demand in the herbal drug industry for an authentication system for *Swertia* spp, in order to enable their commercial use as genuine phytoceuticals. To this end, we used amplified fragment length polymorphism (AFLP) to produce DNA fingerprints for six *Swertia* species. Nineteen accessions (2 of *S.*

chirayita, 3 of *S. angustifolia*, 2 of *S. bimaculata*, 5 of *S. ciliata*, 5 of *S. cordata*, and 2 of *S. alata*) were used in the study, which employed 64 AFLP selective primer pairs. Only 46 selective primer pairs were found to be useful for all the accessions. A total of 5312 fragments were produced by these 46 primer pairs. Species-specific markers were identified for all six *Swertia* species (131 for *S. chirayita*, 19 for *S. angustifolia*, 181 for *S. bimaculata*, 47 for *S. ciliata*, 94 for *S. cordata*, and 272 for *S. alata*). These AFLP fingerprints of the *Swertia* species could be used to authenticate drugs made with *Swertia* spp and to resolve adulteration-related problems faced by the commercial users of these herbs.

Key words: Adulteration; DNA fingerprinting; Crude drug