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Development of novel SCAR markers for genetic characterization of *Lonicera japonica* from high GC-RAMP-PCR and DNA cloning

J.L. Cheng[1]*, J. Li[1]*, Y.M. Qiu[1,2]*, C.L. Wei[1,3], L.Q. Yang[1] and J.J. Fu[1,3,4]

[1]Key Laboratory of Epigenetics and Oncology,
The Research Center for Preclinical Medicine,
Sichuan Medical University, Luzhou, Sichuan, China
[2]Maternal and Child Health Care Hospital of Zigong, Zigong, Sichuan, China
[3]State Key Laboratory of Quality Research in Chinese Medicine,
Macau University of Science and Technology, Macau, China
[4]Judicial Authentication Center, Sichuan Medical University, Luzhou City,
Sichuan, China

*These authors contributed equally to this study.
Corresponding author: J.J. Fu
E-mail: fujunjiang@hotmail.com / fujunjiang@lzmc.edu.cn

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ABSTRACT. Sequence-characterized amplified region (SCAR) markers were further developed from high-GC primer RAMP-PCR-amplified fragments from *Lonicera japonica* DNA by molecular cloning. The four DNA fragments from three high-GC primers (FY-27, FY-28, and FY-29) were successfully cloned into a pGM-T vector. The positive clones were sequenced; their names, sizes, and GenBank numbers were JYHGC1-1, 345 bp, KJ620024; YJHGC2-1, 388 bp, KJ620025; JYHGC7-2, 1036 bp, KJ620026; and JYHGC6-2, 715 bp, KJ620027, respectively. Four novel SCAR markers were developed by designing specific primers, optimizing conditions, and PCR validation. The developed SCAR markers were used for the genetic authentication

of *L. japonica* from its substitutes. This technique provides another means of developing DNA markers for the characterization and authentication of various organisms including medicinal plants and their substitutes.

Key words: High GC-content primers; RAMP-PCR; Sequence-characterized amplified region (SCAR); Genetic authentication; *Lonicera japonica*; Substitutes

