First report of a 16SrII-A phytoplasma infecting *Spermacoce exilis* in China

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Spermacoce exilis (L.O.Williams) is widespread in tropical and subtropical America, Africa, Asia, and Europe. It is a weak erect, decumbent, or procumbent annual herb. In September of 2015, some *S. exilis* showing typical phytoplasma-induced symptoms were observed in areas of wild field in Haikou, Hainan province, China. The petals of affected plants changed to leaves, and the pedicels were elongated. The incidence of affected plants was approximately 5%. Five *S. exilis* plants exhibiting phyllody symptom and another three asymptomatic plants were collected and total DNA were extracted. Phytoplasma universal primers P1/P7 were applied for 16S rDNA amplification using the plant DNA as template, followed by R16F2n/R16R2 for nest PCR analysis. The 16S rDNA fragments (1.8 kb for P1/P7 and about 1.2 kb for R16F2n/R16R2) were detected in all infected samples, but not from the asymptomatic plants. We also cloned the *rp* (ribosomal proteins) gene using primers *rp*(II)F1/*rp*(II)R1 (Martini et al. 2007). The consistent sequences were deposited in the GenBank under accession numbers: KX650615 (16S rRNA) and KX650616 (*rp*). For phytoplasma classification, the phylogenetic tree based on F2n/R2 region of 16S rDNA was

constructed by MEGA 5.0 software. The results showed that *S. exilis* phyllody phytoplasma was clustered into 16SrII group. Virtual RFLP analysis of 16S rDNA fragment was carried out using the online software *iPhyClassifier* (Zhao et al. 2009). The result showed that RFLP profile of *S. exilis* phyllody phytoplasma was consistent with that from Peanut witches'-broom phytoplasma, the representative phytoplasma of 16SrII-A subgroup. To our knowledge, this is the first report about a 16SrII-A subgroup phytoplasma associated with phytoplasma disease on *Spermacoce exilis* in the world.

References

- Martini M, Lee IM, Bottner KD, Zhao Y, Botti S, Bertaccini A et al (2007) Ribosomal protein gene-based phylogeny for finer differentiation and classification of phytoplasmas. *Int J Syst Evol Microbiol* 57:2037–2051
- Zhao Y, Wei W, Lee IM, Shao J, Suo X et al (2009) Construction of an interactive online phytoplasma classification tool, *iPhyClassifier*, and its application in analysis of the peach X-disease phytoplasma group (16SrIII). *Int J Syst Evol Microbiol* 59:2582–2593

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