Perilla citriodora from Taiwan and its phytochemical characteristics

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Abstract

Perilla citriodora Nakai, the wild species of Perilla, was collected from Taiwan and its essential oil analyzed. GC-MS analysis of its oil showed that it has a novel composition of limonene (23.5%) and elemicin (17.8%). In Japanese Perilla, a monoterpene (limonene) and a phenylpropanoid (elemicin) have not been detected in the same plant. To compare the sequence similarity of a secondary metabolic enzyme between P. frutescens and P. citriodora, the nucleic acid sequence of the limonene synthase in this P. citriodora was analyzed using the reverse transcript-polymerase chain reaction (RT-PCR) method. Primers for PCR were designed by employing the known sequence of the limonene synthase cloned from P. frutescens. It was found that the limonene synthase in P. citriodora and that in P. frutescens share a high sequence identity, probably indicating that both enzymes evolved from a common ancestor.