

Rapid analysis of the essential oils from dried *Illicium verum* Hook. f. and *Zingiber officinale* Rosc. by improved solvent-free microwave extraction with three types of microwave-absorption medium.

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A new method of extracting essential oils from dried plant materials has been studied. By adding a microwave-absorption medium (MAM) to a reactor, solvent-free microwave extraction (SFME) was improved and can be used to extract essential oils from dried plant material without pretreatment. With a microwave irradiation power of 85 W it took only approximately 30 min to extract the essential oils completely. The whole extraction process is simple, rapid, and economical. Three types of MAM, iron carbonyl powder (ICP), graphite powder (GP), and activated carbon powder (ACP), and two types of dried plant material, *Illicium verum* Hook. f. and *Zingiber officinale* Rosc., were studied. The results were compared with those obtained by use of conventional SFME, microwave-assisted hydrodistillation (MAHD), and conventional hydrodistillation (HD), and the conclusion drawn was that improved SFME was a feasible means of extracting essential oils from dried plant materials, because there were few differences between the composition of the essential oils extracted by improved SFME and by the other methods.