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GC-MS Analysis and Antiinflammation of Ginger Rhizome With Various Extraction Methods

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ABSTRACT

Ginger (*Zingiber officinale*) is a rhizome plant well-known as a spice and medicinal material. Either one of the bioactive components is an essential oil, which is efficacious in preventing and treating various diseases. This research aims to determine the percentage yield of extracts, GC-MS analysis of the percentage of the chemical content of essential oils, and the antiinflammation activity of ginger with various extraction methods. Firstly, compounds from ginger rhizomes were extracted using maceration, ultrasonic, and distillation techniques, and the extracts were analyzed using GC-MS Spectrophotometer. The antiinflammation activity was done using in vitro protein denaturation bovine serum albumin in Triss buffer. The highest percentage extract yield from ultrasonic extraction was 21.29%, then maceration extraction was 6.26%, and distillation extraction was 5.00%. The GC-MS results showed that the secondary metabolite compounds from maceration, ultrasonics, and distillation contained zingiberol, zingiberin, shogaol, borneol, linalool, citral, geraniol, and E-citral. The zingiberol group of compounds was obtained with the highest percentage from ultrasonic extraction at 1.07%, then maceration extraction at 1.03%, and distillation extraction at 0.27%.

Keywords: Extraction, GC-MS, ginger (*Zingiber officinale*)