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## In vitro test of antiwrinkle nanoemulsion prepare of extract *Centella asiatica* (*Centella asiatica* (L) Urb) and ginger (*Zingiber officinale* Rosc.)

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Preparation of nanoemulsion prepare from the extract of *Centella asiatica* and ginger is intended to know its activity as antiwrinkle agent by inhibiting elastase and collagenase enzymes. The extraction method of *Centella asiatica* and ginger is by using the supercritical CO<sub>2</sub> extract fluid. Yield of asiaticoside content and total triterpenoid and determination of compound content in *Centella asiatica* extract was analysed by High Performance Liquid Chromatography (HPLC). Antioxidant activity was measured using a 1,2-diphenyl-2-picrylhydrazyl (DPPH) radical damping test and identified ginger extract components using Gas Chromatography Mass Spectrometry (GC-MS). The inhibitory effect on wrinkling was done by measuring the inhibition of elastase and collagenase enzymes. Based on chromatogram profile of HPLC, showed that *Centella asiatica* (L) Urb contained the largest asiaticoside compound 4.468 mg/mL, rendement of crude extract was 9.23±0.015 mg/g and total triterpenoid was 34.90±0.084 mg/g extracted at 27 MPa pressure and 50°C temperature with time 4 hours extraction. Results of antioxidant activity with highest DPPH was 63.66±0.181 µg/mL in ginger extract. The components of ginger extract consisting of volatile oil components is mainly of sesquiterpenes hydrocarbons, i.e., α-zingiberene (1.07%), β-sesquiphellandrene (1.08%), α-curcumen (0.88%), α-farnesene (0.5%), and β-bisabolene (1.22%). Components contained in oxygenated monoterpene are eucalyptol, β-linalool, endo-borneol, terpinen-4-ol, α-terpineol, citronellol, β-citral, geraniol, and α-citral. The monoterpene hydrocarbon component is camphene hydrate, and the oxygenated monoterpene ester component is L-bornyl acetate (0.29%) and geranyl acetate (0.55%). The oleoresin compounds (non volatile oils) contained in the gingerbread extract are gingerol consisting of 6-gingerol (5.76%) and [6]-paradol (0.38%). In addition to the above-mentioned compounds, aldehydes aliphatic compounds (hexanal, octanal, decanal) and other compound components are present in ginger extract (bis (2-ethylhexyl) phthalate and bioctyl terephthalate).

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