Med Aromat Plants 2016, 5:5(Suppl)
http://dx.doi.org/10.4172/2167-0412.C1.006

Secondary metabolite profile of *Fragraea fragrans* (Tembesu) fruits: The fruits for herbal cosmetic

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Fragraea fragrans fruits are locally named *Buah Tembesu*, belongs to *Loganiaceae* family. Those can be harvested two times a year, in May and in November. The major secondary metabolites of the fruits are ursolic acid and its isomer oleanolic acids (3.1% accounted from the dried ones). In order to develop these fruits to become topical herbal cosmetic products for skincare, the bioactive compounds of the fruits have been mapped to consider their side effects as well as their efficacy. Eleven compounds have been successfully identified with LCMS/MS from the filtrates of the methanol extracts of the fruits after the solid crystals of ursolic acid and its isomer oleanolic acid has completely precipitated and their chemical structures were confirmed by comparing their molecular ion peaks to relevant compounds in some of the references, respectively; including the fragment ion peaks patterns. As a result, those compounds were classified into phenyl propanoic, pentacyclic triterpene acids, flavones, phenyl propanoic, and tannin trimer groups.

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Study of antimicrobial activity of black cumin seeds (*Nigella sativa* L.) against *Salmonella typhi* in vitro

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Objective: To determine the effectiveness of extracts of black cumin seeds (*Nigella sativa* L.) as an antimicrobial against *Salmonella typhi* in vitro. And to determine minimum inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) from extracts of black cumin seeds (*Nigella sativa* L.) against *Salmonella typhi*.

Design: This experimental study used post-test only control group design with four time repetition. Step one was cultivating bacteria in liquid medium with various concentration of extract, that was 40%, 42.5%, 45%, 47.5% and 50% with two control, extract control and bacterial control.

Results: The MIC (minimal inhibition concentration) was 45% concentration of extract. Step two was plating in NAP (nutrient agar plate) medium. The MBC (minimal bactericidal concentration) was 47.5% concentration of extract. The result of experiment showed different average of *Salmonella typhi* colony from every group. The result of the experiment was analyzed by one way ANOVA test. The hypothesis test of MBC showed significant differentiation, and then was continued with regression test. The study can be concluded that the addition of extract concentration showed decrease in the average of *Salmonella typhi* colony.

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