EXTRACTING ESSENTIAL OIL FROM ORANGE PEEL BY USING MICROWAVE NUMBER

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ABSTRACT

Orange peel oil is one of essential oil which is often called etheric oils. Essential oil or etheric oil is a term used for volatile oil that have vary compositions and boiling points In Indonesia orange peels usually been thrown away in a garbage and nowadays have become a big problem in the big cities. To solve this problem, one of the effort that can be done is processing or recycling the waste become a useful product, it is essential oil from orange peel. Orange peel essential oil can be made with vary process, they are water distillation, steam-water distillation, and steam distillation.

The objective of this research is to analyze orange peel essential oil making process from distillation with microwave help and to study the influence of solvent on the rendemen and the quality of orange peel essential oil that has been produced by using microwave and to know the influence of distillation temperature to the amount of essential oil that can be produced. This research done by using microwave as the heater. First weigh about 300 grams of orange peel and put it into distillation flask with the addition of 100 ml solvent ( Aquades ). Heat up the distillation flask by setting up the temperature in the distillation process according to the specified variable. Count the distillation time from the first drop of distillate that come out from condensor, then collect the distillate and separate the water from
the oil by keep it on the freezer at 0\textdegree C, then analyze the orange peel essential oil.

The variable in this research is the variety of orange, they are kaffir lime and lemon, the process of using microwave done about 20 minutes after the first drop of distillate, where this process is done for 140. Distillation temperature (105, 115, 125, and 135\textdegree C). And in atmospheric temperature and the mass of orange peel is 300 grams.

From the research product obtained the data of rendemen, density, refractive index and the chemical content of orange peel essential oil. From the obtained data, can be conclude that the oil rendemen produced with solvent use have a bigger rendemen than without using solvent to all variety of orange peel where the kaffir lime peel oil with solvent is $0.285 - 0.646\%$ and without solvent is $0.224 - 0.325\%$. For lemon peel with solvent is $0.055 - 0.330\%$ and without solvent is $0.103 - 0.165\%$. The orange peel essential oil distillation with solvent have a better quality than without solvent use From the qualitative analysis (GCMS), the largest component from orange peel essential oil is limonene, where from the lemon peel with solvent is $61.84\%$ and from the lemon peel without solvent is $47.53\%$. For kaffir lime peel with solvent is $11.49\%$ and from the kaffir lime peel without solvent is $6.59\%$ The largest component in kaffir lime peel oil is Citronelal and Citronelol.

Keyword : orange peel essential oil, microwave, distillation time, Temperature, Solvent;