ABSTRACT

RAW MATERIAL STANDARDIZATION OF KAEMPFERIAE RHIZOME (*Kaempferia galanga* L.) THAT WERE COLLECTED FROM PACET-MOJOKERTO

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Kencur (*Kaempferia galanga* L.) is one of plants which it's rhizome can be used as traditional medicine. The marker compound of Kaempferiae Rhizoma is ethyl *p*-methoxycinnamate (EPMS). EPMS shows many biological activity such as anticancer and antimonoamine oksidase. Basic on this information, Kaempferiae Rhizoma has a potency to be developed as phytopharmaca product. To guarantee the quality, safety and efficay of this product, the first step that must be done is standardize the raw material of Kaempferiae Rhizoma.

Kaempferiae Rhizoma that were collected had been washed and then cut and dried. After that, the dried rhizome had been grinded into powders. The specific and nonspecific parameters of this raw material powder has been determined, and then compare the value with standard literature.

The results of specific parameters showed that total compound that soluble in water was (14,7896±0,6341)%, total compound that soluble in ethanol was (2,5718±0,0592)% and essential oil content was (0,93±0,0608)%. From the linierity test, r value was 0,96089. Variety coefficient from precission test was 3,77%, whereas the recovery from accuracy was (98,31±5,36)%. EPMS content in raw material powder was (8,53±0,2)%. Fingerprint of raw material powder with TLC-densitometry in λ 308 nm showed many peaks in Rf 0,20; 0,27; 0,32; 0,75; 0,98; 1,27; 1,29. EPMS's peak was located in Rf 0,75. Fingerprint with HPLC showed many peaks which have area bigger than another such as peak in retention time 2,260; 20,762 and 20,885 minutes. Peak of EPMS was located in 20,885 minutes. Fingerprint with IR spectrophotometer showed there were ester's cluster (C=O and C-O), C-H aromatic, C-C aromatic, C=C aromatic, alkene (C=C), alifatic chain (C-C and C-H) and also ether (C-O aromatic). Macroscopic and microscopic of raw material also be examined.

The results of nonspecific parameters showed that total ash content was (10,7500±0,4533)%, acid insoluble ash content was (3,1939±0,1222)%, water soluble ash content was (3,3230±0,1411)%, water content was (16,12±0,3027)%, loss on drying was (21,0968±0,1087)%, Pb content was 2,677 ppm, Hg and As was undetected, Cd content was 0,042 ppm and Cu content was 3,782 ppm. Microbial impurities test showed that in raw material powder total plate number (TPN) was 9.850, TPN of mold was 370, TPN of yeast was 680 and the raw material powder was free from *Salmonella*, *Escherichia coli*, *Staphylococcus aureus* serta *Pseudomonas aeruginosa* and also free from organophosphate, organochlorine and carbamate pesticides.

Keyword: *Kaempferia galanga* L., rhizome, raw material, specific and nonspecific parameters, *fingerprint*