



**Al-Salam University**

**Faculty of Pharmacy**

**Quality Control of clove oil brands in Benghazi  
Pharmacies according to the British  
Pharmacopeia**

Project Submitted for Partial Fulfilment of Requirement of B.  
Pharm Degree

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## Abstract

Phytotherapy provides an important field for research, where the active metabolites of plants can be tools which provide advantages in therapies, being a promising field for the search of new alternatives with greater antimicrobial application in the dental practice by using the plants derived compounds. Clove is used to treat various health conditions, including intestinal parasites, migraine headaches, colds, impotence, and gastrointestinal problems such as nausea, vomiting, diarrhea and gas. It is also used to alleviate inflammation from arthritis and flu symptoms. Topical uses of clove include application directly to the gum or skin to alleviate dental pain and to reduce inflammation of the mouth and throat areas. Clove is also used in combination with other supplements for treating premature ejaculation and cancer.

Quality control study of the clove oil in Bengasi markets showed a great variation in the active ingredient of the oil.

The results of the quantitative analysis indicated that the (samples) S1 and S3 have a higher percentage of eugenol in than S2 with 80%, 85% and 75% respectively.

This study indicated that S1 and S3 contain an acceptable amount of eugenol according to the standards identified by the British Pharmacopoeia. On the other hand S2 is considered to be a substandard commercial preparation.

TLC study showed The R<sub>f</sub> values of eugenol were 0.67, 0.65 and 0.70 for S1, S2 and S3 respectively, while acetyleneugenol were at 0.45 for S1 and 0.55 for S2. The low R<sub>f</sub> values show that the compounds have a higher affinity to the polar mobile phase and thus they don't stay on the stationary phase for long. The outcome confirms that there isn't much difference in the polarity of the two compounds depending on the mobile phase used in the developing chamber.

The TLC proved that eugenol is the major compound of clove oil with distinct spot followed by acetyl eugenol.

In conclusion there is a direct relationship between the quality of the oil and the concentration of eugenol, as it considered to be the main active ingredient of the preparation.