

## DIRECT INCORPORATE OF CLOVE OIL VS ENCAPSULATED CLOVE OIL FOR COSMETIC FORMULATION



**INTRODUCTION:** Clove oil is a natural essential oil. Clove oil has a repressive action against many organisms like *Streptococcus aureus L. Monocytogenes, and Aspergill*. Clove essential Oil is very helpful for use in blends intended to help relieve pain. Eugenol is active ingredient in clove oil used for local antiseptic and anesthetic. Eugenol fight the oral bacteria, so it is used for relieve the toothache pain. Clove oil has some antimicrobial and antioxidant property.

### BENEFITS OF CLOVE OIL:

- Clove oil Contain Eugenol has anti-inflammatory properties which relief from toothache. It can numb the part of the skin that is in close contact with the teeth.
- Clove oil has antibacterial properties to help in resisting the bad bacteria and cleanse the mouth and help freshen breath.
- Clove oil has anti-inflammatory properties it can help to reduce the gum swelling and enhancing the gum tissue health.
- Clove oil as an antimicrobial activity to help the kill bacteria.

### WHY ENCAPSULATED CLOVE OIL ?



Encapsulation Technology used in the development of cosmetic formulations that more stable, more effective and with improved sensory properties. Clove oil is a volatile compound and its sensory properties can be change due to volatilization, heating or chemical interaction, which will alter the quality of the product. Clove oil is essential oil which can be degrading during processing, storage and transformation. These all problems can minimize by the encapsulation of Clove oil.

### UNIQUE FUNCTIONS:

- Sprayspheres®- SC beads containing Clove Oil are stable so easily applied into formulation.
- Sprayspheres®- SC beads containing Clove Oil When rubbed onto teeth during brushing, they break easily, releasing the active contents.
- Sprayspheres®- SC beads containing Clove Oil hard and solid in bulk (easy to process and delivery).
- Sprayspheres®- SC beads containing Clove Oil are hard and dry but soften in contact with at least 20% of water.

### MANUFACTURING PROCESS OF SPRAYSFERES® – SC BEADS CONTAINING CLOVE OIL:

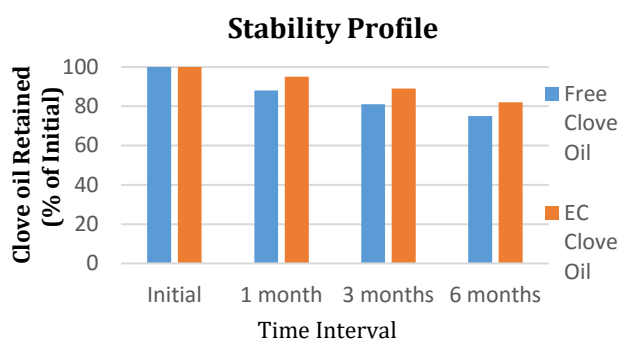
Clove oil, lactose, microcrystalline cellulose, HPMC and color were weighed accurately and dry mixing of all ingredients is done to achieve homogeneous powder dispersion, the obtained blend was granulated using purified water to form wet mass. Dry mixing and wet granulation are carried out using Umang Rapid Mixer granulator (URMG-10). This wet mass was then extruded through



Umang Single Screw Extruder (USSE- 60) which produces rod shaped particles of uniform diameter from the wet mass. Extrudes were then spheronized using Umang Spheronizer (USPH-150). After spheronization process, the obtained beads were kept for drying.

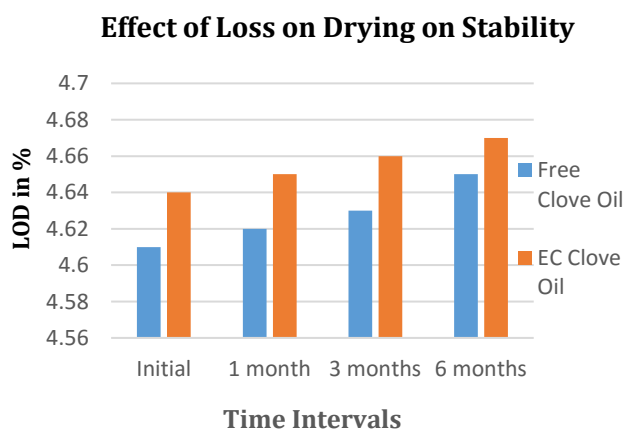
### IMPROVED SHELF LIFE STUDY:

The Free Clove oil and Sprayspheres®- SC beads containing Clove Oil were kept in an air tight glass bottle and place in Stability Chambers at temperatures of 30°C ± 2°C for 180 days, HPLC analysis show that the Sprayspheres®- SC beads containing Clove Oil retain 82 % of the Clove oil while the free clove oil only retained 75%.



### TEMPERATURE EFFECT ON LOD STABILITY:

The Free Clove oil and Sprayspheres®- SC beads containing Clove Oil were place in an air tight glass bottles at 30°C ± 2°C for 180 days in a stability chamber. The sampling and analysis was done at fixed time intervals for their LOD, to check the moisture loss in the samples. Results mentioned in below graph.



### APPLICATIONS:

- Mouthwashes
- Toothpaste

### CONCLUSION:

The results obtained from this study show that using encapsulated Clove oil i.e. Sprayspheres®- SC beads containing Clove Oil are more stable and deliver desire amount of dose of clove oil for relief from the tooth pain.

### REFERENCES:

1. RAJA NIVETHA; KARTHIKEYAN MURTHYKUMAR; ASHWIN KS ;NIRMAL KUMAR ; PRIYADHARSHINI R. EFFECTS OF NATURAL PRODUCTS ON ORAL HEALTH: A REVIEW. Asian J Pharm Clin Res, Vol 7, Issue 5, 2014, 279-282.
2. B.Pavithra. Eugenol-A Review.Journal Of pharmaceutical science and research. 2014, 153-154.
3. V. V. Kopp; C. B. Agustini; J. H. Z. dos Santos; and M. Gutterres. MICROENCAPSULATION OF CLOVE ESSENTIAL OIL WITH GELATIN AND ALGINATE.IULTCS CONGRESS DRESDEN 2019.

### KEY WORDS:

Encapsulated Beads, Spheres, Cosmetic beads, Beads for special effects, Cosmetic beads for aesthetic effect.