

DIRECT INCORPORATE OF LEMON OIL VS ENCAPSULATED LEMON OIL FOR PERSONAL CARE FORMULATION

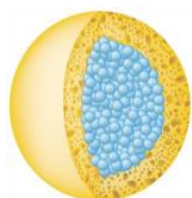


INTRODUCTION: Lemon Oil obtained from Lemon fruit of the *Rutaceae* family through process of cold extraction. It is an essential oil greenish-yellow in color. Lemon oil is a good content of Vitamin A,B and C. It is rich source in bio-active compound. It contain phytochemicals, polyphenols, terpenes and tannins. Lemon Oil has antibacterial and anti-fungal activity. It is a natural oil, nontoxic and does not leave any residue. Lemon Oil use for the cosmetic products due to its exclusive fresh aroma.

BENEFITS OF LEMON OIL:

- Lemon Oil has a astringent and antiseptic properties, It is use for the facial cleanser and help to treating the damage skin cell also reduce the excess oil of the skin.
- Lemon oil may help to remove the acne and hydrate the skin, it has a strong antioxidant property and anti-aging effect.
- Lemon oil act as a natural cleanser. It protect from body bacteria, fungi and harmful pathogens.
- Lemon Oil fight the dandruff and also reduce the hair fall stimulating the hair follicles.
- Lemon Oil used to prevent tooth decay by fighting bacteria.

WHY ENCAPSULATED LEMON OIL ?



Encapsulation Technology used in the development of cosmetic formulations that more stable, more effective

and with improved sensory properties. Encapsulation protect the active ingredient from the unwanted effect. Lemon oil is a photosensitive and volatile compound it can oxidize when exposed to high temperature, oxygen. Encapsulation is best technology to minimize these all problems.

UNIQUE FUNCTIONS:

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

MANUFACTURING PROCESS OF SPRAYSFERES® – SC BEADS CONTAINING LEMON OIL:

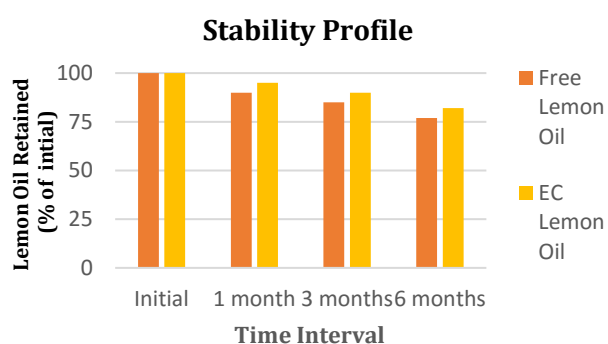
Lemon Oil, lactose ,Micro-crystalline cellulose, HPMC and color were weighed accurately and Dry mixing of all ingredients is done to achieve homogeneous powder dispersion, The obtained blend was granulated using purified water to form wet mass. Dry mixing and wet granulation are carried out using Umang 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.

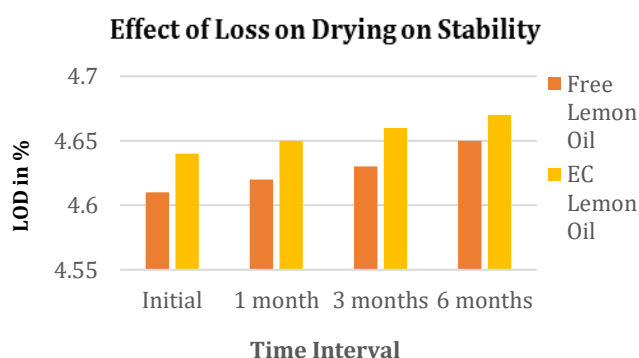
IMPROVED SHELF LIFE STUDY:

The Free Lemon oil and Sprayspheres®-SC beads containing Lemon 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 Lemon oil retain 82 % of the Lemon oil while the free Lemon Oil only retained 77 % .



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Lemon Oil and Sprayspheres®-SC beads containing Lemon Oil were place in a 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:

- Hair Serum
- Hair Shampoo
- Body /Face Creams
- Body /Face Lotions
- Body /Face Gels
- Toothpaste

CONCLUSION:

The results obtained from this study show that using encapsulated Lemon Oil i.e. Sprayspheres®-SC beads containing Lemon Oil are more stable and deliver desire amount of dose of Lemon Oil for skin nourishment ,hair growth and reduce the tooth pain.

REFERENCES:

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KEY WORDS:

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