

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

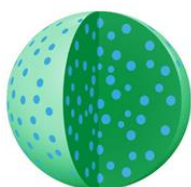


**INTRODUCTION:** Rosemary is an aromatic and medicinal plant having family *Lamiaceae*. Its synonym and scientific name is *Rosmarinus officinalis*. Rosemary essential oils are produced from the flowering tips of the plant. The important constituents of rosemary essential oil are eucalyptol,  $\alpha$ -pinene and Camphor. Rosemary essential oil has antibacterial, anti-fungal, antiseptic, ant inflammatory, and antioxidant properties, so it is used in the shampoos and skin products.

### BENEFITS OF ROSEMARY OIL:

- Rosemary oil mainly use for the hair care, it stimulates the hair follicles and promote the hair growth also increase the hair thickness.
- Rosemary Oil nourishes the hair and moisturizing dry scalp helps against dandruff.
- Rosemary oil hydrate and balance the dry or oily skin, it is use for irritated, inflamed skin due to its anti-microbial, anti-septic, astringent, anti-oxidant.
- Rosemary oil reduces the inflammation caused by acne because it contains  $\alpha$ -pinene. Rosemary oil improves circulation to give glowing and tightens the skin.

### WHY ENCAPSULATED ROSEMARY OIL ?



Encapsulation Technology used in the development of cosmetic formulations that more stable, more effective and with improved sensory properties. Rosemary 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. Rosemary oil is essential oil which can be degrading during processing, storage and transformation. These all problems can minimize by the encapsulation of Rosemary oil.

### UNIQUE FUNCTIONS:

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

### MANUFACTURING PROCESS OF SPRAYSFERES® - SC BEADS CONTAINING ROSEMARY OIL:

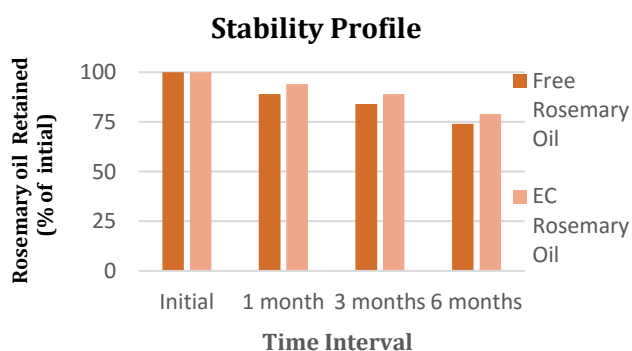
Rosemary oil, lactose, micro-crystalline cellulose HPMC and color were weighed accurately and dry mixing of all ingredients is done to achieve homogeneous powder dispersion, the obtained blend was granulated using purified water to form wet mass. Dry mixing and wet granulation are carried out using Umang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

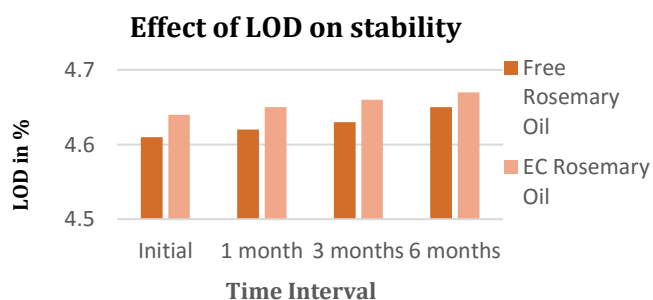
### IMPROVED SHELF LIFE STUDY:

The Free Rosemary oil and Sprayspheres®-SC beads containing Rosemary 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 Rosemary Oil retain 79 % of the Rosemary oil while the free Rosemary oil only retained 74% .



### TEMPERATURE EFFECT ON LOD STABILITY:

The Free Rosemary oil and Sprayspheres®-SC beads containing Rosemary 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:

- Hair shampoo
- Hair Serum
- Body /Face Creams
- Body /Face Lotions
- Body/Face Gels

### CONCLUSION:

The results obtained from this study show that using encapsulated Rosemary oil i.e. Sprayspheres®- SC beads containing Rosemary Oil are more stable and deliver desire amount of dose of Rosemary oil for skin and hair nourishment.

### REFERENCES:

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### KEY WORDS:

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