DIRECT INCORPORATE OF TEA TREE OIL VS ENCAPSULATED TEA TREE OIL FOR COSMETIC FORMULATION

INTRODUCTION: Tea Tree Oil is an essential oil also known as *Melaleuca alternifolia*, belongs to the *Myrtaceae* Family. Tea Tree Oil extract from the leaves of the tea tree .Tea tree Oil pale yellow to nearly colorless, volatile liquid and fresh camphoraceous odor. Tea Tree oil is natural products, so it is non-toxic, biodegradable, and biocompatible. Tea Tree oil has antibacterial, antimicrobial and anti-fungal activity due to presence of terpinen–4-ol as the major constituent

BENEFITS OF TEA TREE OIL:

- Tea Tree Oil is all purpose of cleaner. It is a natural disinfectant inhibiting the growth of bacteria due its antibacterial and antimicrobial activity.
- Tea Tree Oil use for gum infection, mouth ulcers, throat infection and also reduces the bad breath.
- Tea Tree Oil applies on the skin it will help to clear fungal and bacterial infection. It reduces the acne, redness and soothes skin inflammation.
- Tea Tree oil use for the hair and scalp by removing dead skin cells. Reduces the dandruff also control the lice.

WHY ENCAPSULATED TEA TREE OIL ?

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

UNIQUE FUNCTIONS:

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

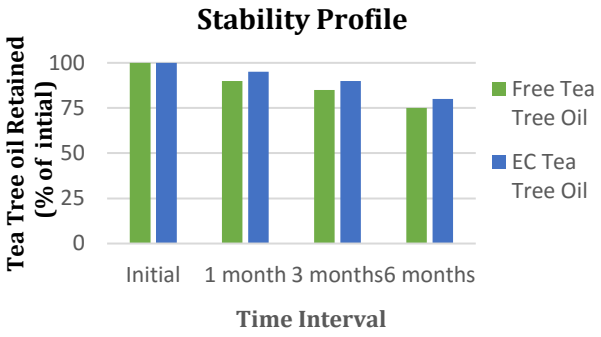
MANUFACTURING PROCESS OF SPRAYSPHERES® – SC BEADS CONTAINING TEA TREE OIL:

Tea Tree 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

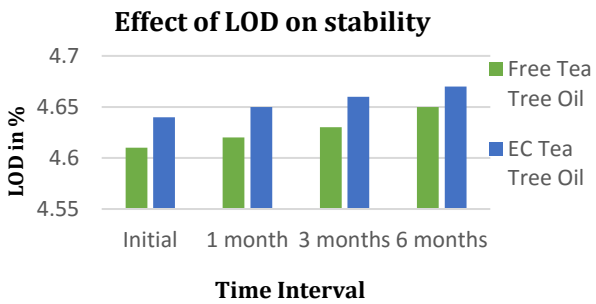
IMPROVED SHELF LIFE STUDY:

The Free Tea Tree oil and Sprayspheres®- SC beads containing Tea Tree Oil were kept in an air tight glass bottle and SC beads containing Tea Tree Oil in Stability Chambers at temperatures of 30˚C ± 2˚C for 180 days, HPLC analysis show that the Sprayspheres®- SC beads containing Tea Tree Oil retain 80 % of the Tea Tree oil while the free Tea Tree oil only retained 75%.



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Tea Tree oil and Sprayspheres®- SC beads containing Tea Tree 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
- Toothpaste /Mouthwash

CONCLUSION:

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

REFERENCES:

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KEY WORDS:

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