

## DIRECT INCORPORATE OF TEA TREE OIL VS ENCAPSULATED TEA TREE OIL FILMS FOR BATHBOMB AND SOAP FORMULATION



**ACTIFILMS™**AF is made up of Hydroxypropyl Methyl Cellulose which is a chemically modified cellulose polymer. HPMC is a water soluble synthetic polymer which was used as film former. It is a thin, flexible sheet of polymer in which an active ingredient has been incorporated. Actifilms rapidly disintegrate and also have greater stability and shelf life.

**KEYWORDS:** Encapsulated films, fast dissolving films ,films for special effects, HPMC films, dissolving films for bathbomb and soap , water soluble films for decoration.

### **BENEFITS OF TEA TREE OIL:**

- Tea Tree Oil is naturally soothing when applied on the skin it helps to clear fungal and bacterial infection. It reduces the acne, redness and soothes skin inflammation.
- Tea Tree Oil is a sudorific substance, meaning that it increases sweating and promotes the removal of toxins from the body. It also cleanses the skin's pores.

### **WHY ENCAPSULATED TEA TREE OIL ?**

Encapsulation Technology used in the development of 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 degraded during processing, storage and transformation. These all problems can minimize by the encapsulation of Tea Tree oil.

### **UNIQUE FUNCTIONS:**

- Easy to handle at the industrial scale.
- Disappear on gentle rubbing without leaving any residue on upon application.
- Non toxic and Non irritant ,soluble in water. Available in natural flavors.
- Film have more flexibility and better physical properties.



**UMANG  
PHARMATECH  
UCFC-600 FILM  
CASTING MACHINE**

### **MANUFACTURING PROCESS OF CONTAINING ACTIFILMS™ TEA TREE OIL:**

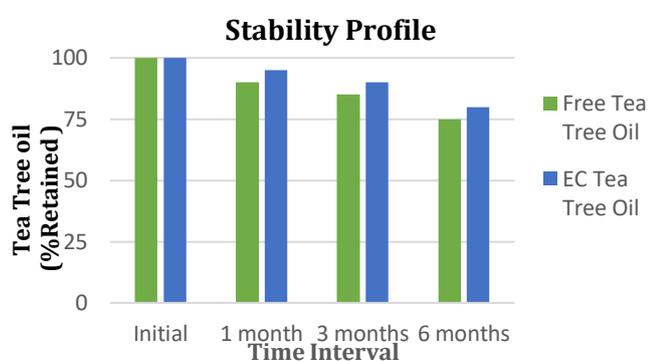
The Solution Casting Method : It is ideally suited for a water-soluble polymer, "Water soluble" refers to a film which, when exposed to water, begins to dissolve or disintegrate to its smallest components. . Film coating is the process whereby active material is surrounded by a thin layer of polymeric material. Film coating method generally involves the steps of continuously pumping a feed of polymer solution with primary component i.e. HPMC . Both HPMC and colour weighed accurately and

mixing of all ingredients to achieve homogeneous primary solution and further combining

with secondary component to polymer solution. Secondary components such as active functional or decorative ingredients are finally deposited into the primary solution onto the casting surface for film formation using Umang Pharmatech's **UCFC-600** (Solution tank, Film Casting). The resulting solution is cast as a film and allowed to dry, which are then cut into pieces of the desired size and shape.

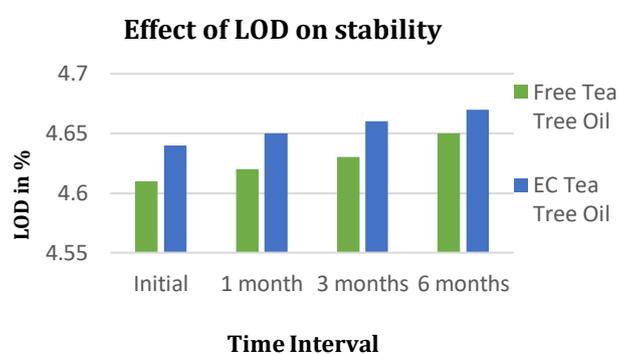
### IMPROVED SHELF LIFE STUDY:

The Free Tea Tree and Actifilms™ containing Tea Tree were kept in an air tight glass bottle and place in Stability Chambers at temperatures of  $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for 180 days, HPLC analysis show that the Actifilms™ containing Tea Tree retain 80% of the Tea Tree while the free Tea Tree only retained 75%.



### TEMPERATURE EFFECT ON LOD STABILITY:

The Free Tea Tree oil and Actifilms™ containing Tea Tree Oil were placed in air tight glass bottles at  $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$  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.



### CONCLUSION:

The results obtained from this study show that using encapsulated Tea Tree oil are more stable and deliver desired amount of dose of Tea Tree oil for skin make it an ideal for use in formulation.

### REFERENCES:

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