

DIRECT INCORPORATE OF TULSI OIL VS ENCAPSULATED TULSI OIL FILMS FOR ORAL CARE 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. Films are rapidly disintegrate and also have greater stability and shelf life.

BENEFITS OF TULSI OIL:

- Tulsi Oil use for maintaining an oral hygiene also use for many common oral infection.
- Tulsi Oil contain eugenol it can help to reduce the tooth ache
- Tulsi oil has an antibacterial activity which control the growth of bacteria in mouth and preventing the infection. It also provide the freshness in breath and keep aside bad breath.
- Tulsi oil has anti-inflammatory properties it can help to reduce the gum swelling and enhancing the gum tissue health.

WHY ENCAPSULATED TULSI OIL ?

Encapsulation Technology used in the development of formulations that more stable, more effective and with improved sensory properties. Encapsulation protect the active ingredient from the unwanted reactions. Tulsi oil easily degrade and giving the undesired interaction with external surface so it become unstable. To improve the stability and protect sensory properties encapsulation technology use for the Tulsi Oil.

UNIQUE FUNCTIONS:

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

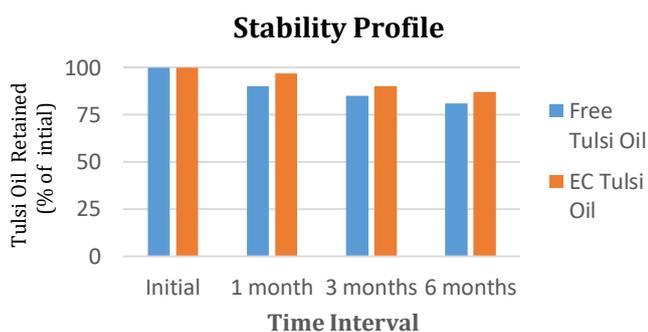
MANUFACTURING PROCESS OF ACTIFILMS™ CONTAINING TULSI OIL :

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 Tulsi oil and Actifilms™ containing Tulsi 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 Actifilms™ containing Tulsi oil retain 87 % of the Tulsi oil while the free Tulsi Oil only retained 81 % .



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Tulsi Oil and Actifilms™ containing Tulsi 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.



CONCLUSION:

The results obtained from this study show that using encapsulated Tulsi Oil are more stable and deliver desire amount of dose of Tulsi Oil and make it an ideal for use in oral care formulation.

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KEY WORDS:

Encapsulated films ,Films for special effects ,HPMC films, dissolving Films.