DIRECT INCORPORATE OF HYALURONIC ACID VS ENCAPSULATED HYALURONIC ACID 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 HYALURONIC ACID:

- Hyaluronic acid has antioxidant properties, which can produce free radicals and protect the cell damage of the skin, from UV-light, which also causes wrinkles, accelerated skin aging as well as skin cancer.
- When Hyaluronic acid is activated, the fibroblasts within the skin secrete collagen and elastin, two key elements in the healing process and repairs skin within.
- Hyaluronic acid is a natural substance produced by skin (both the epidermis and dermis) where it functions to keep skin youthful, moisturized, supple, elastic, smooth, hydrated and toned.

WHY ENCAPSULATED HYALURONIC ACID ?

Encapsulation Technology used in the development of formulations that more stable, more effective and with improved sensory properties. The main aim of micro-encapsulation to protect the active material from undesirable reactions.

In its natural form, hyaluronic acid is not absorbed very well by the skin and it does not penetrate to the deeper skin layers upon topical application. This is because the molecule are too large to penetrate through the skin. Also, there are other properties that restrict its absorption. The only reliable way to replenish the skin with the Hyaluronic acid is to encapsulate H.A.(Hyaluronic acid), that contains varying chain lengths of the basic disaccharide unit (uronic acid attached to N-acetylglucosamine) to penetrate into layers of skin to reap its maximum benefits.

UNIQUE FUNCTIONS:

- Easy to handle at the industrial scale.
- Disappear on gentle rubbing without leaving any residue on skin 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.

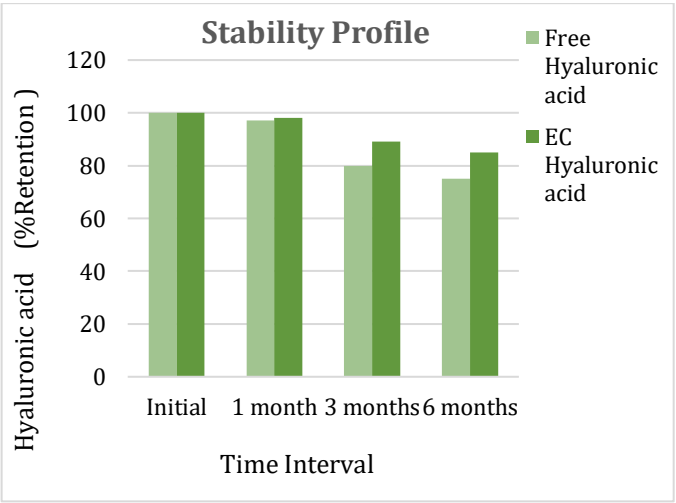
MANUFACTURING PROCESS OF ACTIFILMS™ CONTAINING HYALURONIC ACID:

UMANG PHARMATECH UCFC-600 FILM CASTING MACHINE

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.

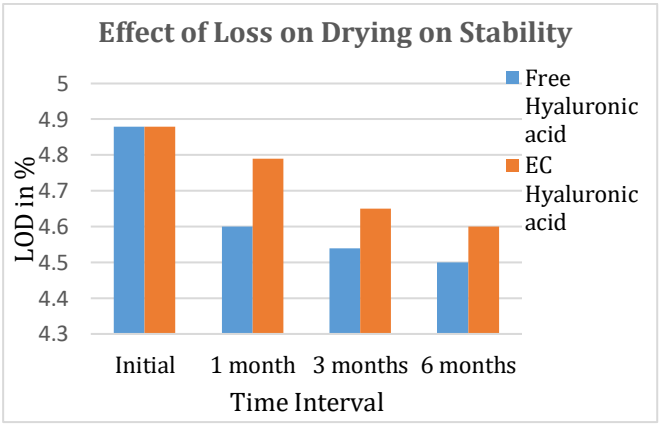
IMPROVED SHELF LIFE STUDY:

The Free Hyaluronic acid and Actifilms™ containing Hyaluronic acid 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 Hyaluronic acid retain 85 % of the Hyaluronic acid while the free Hyaluronic acid only retained 75 % .



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Hyaluronic acid Actifilms™ and molecule containing Hyaluronic acid 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 Hyaluronic acid i.e. Actifilms™ containing Hyaluronic acid more stable and deliver desire amount of dose of Hyaluronic acid for skin nourishment .

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