

DIRECT INCORPORATE OF NEEM OIL VS ENCAPSULATED NEEM OIL FOR COSMETIC FORMULATION

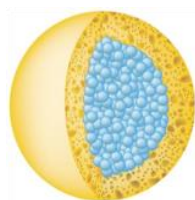


INTRODUCTION: Neem oil is vegetable oil naturally occurring from the fruits and seeds from the Neem Tree. Neem oil is yellow to brown, has a bitter taste and hydrophobic in nature. Azadirachtin is the main constituent found in Neem and has medicinal properties. Neem Oil is used to most common problems of people's face. It contains fatty acids and triglycerides used for the healing of the topical skin disorders such as rashes, acne and also provides the moisturizer for the skin. Neem Oil has anti-fungal, antibacterial, antiseptic and anti-inflammatory properties.

BENEFITS OF NEEM OIL:

- Neem Oil contains fatty acids used for the healing of dry skin and moisturizing the skin. It is used for hyper-pigmentation, reduces melanin production and changes the skin tone.
- Neem Oil is used to treat acne and reduces redness due to its anti-inflammatory and antibacterial properties. It also helps to reduce free radicals in the skin and acts as an anti-aging component.
- Neem Oil is traditionally used for dry scalp and dandruff. Due to its anti-fungal activity, it fights dandruff and head lice.
- Neem oil helps to reduce oral infection, gum disease and is also used for tooth decay and mouth ulcers.

WHY ENCAPSULATED NEEM OIL ?



Encapsulation Technology used in the development of cosmetic formulations that are more stable, more effective and with

improved sensory properties. Neem Oil is typically light and temperature sensitive. It degrades rapidly and is photosensitive. Neem Oil has anti-fungal and antibacterial activity which can change if the oil gets oxidized and becomes rancid. These problems can be minimized by the encapsulation of Neem Oil.

UNIQUE FUNCTIONS:

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

MANUFACTURING PROCESS OF SPRAYSpheres® – SC BEADS CONTAINING NEEM OIL:

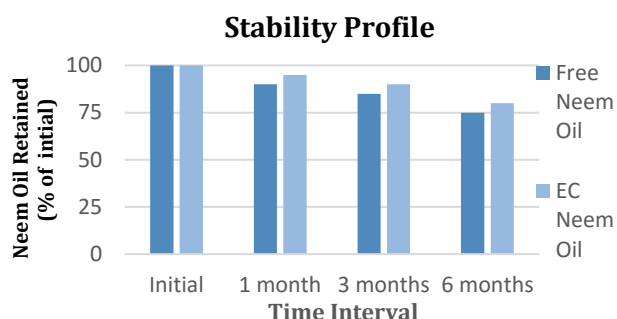
Neem Oil, lactose, Micro-crystalline cellulose, HPMC and color were weighed accurately and dry mixing of all ingredients is done to achieve homogeneous powder dispersion. The obtained blend was granulated using purified water to form wet mass. Dry mixing and wet granulation are carried out using Umang



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 Neem oil and Sprayspheres®-SC beads containing Neem oil 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 Sprayspheres®-SC beads containing Neem oil retain 80% of the Neem oil while the free Neem Oil only retained 75 % .



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Neem Oil and Sprayspheres®-SC beads containing Neem Oil were place in a 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.



APPLICATIONS:

- Toothpaste
- Mouthwash
- Hair Serum, Shampoo
- Body /Face Creams
- Body /Face Lotions
- Body /Face Gels

CONCLUSION:

The results obtained from this study show that using encapsulated Neem Oil i.e. Sprayspheres®-SC beads containing Neem Oil are more stable and deliver desire amount of dose of Neem Oil for skin nourishment ,hair growth and relive from the tooth pain

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KEY WORDS:

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