

# Coconut oil based microcapsules coated with CHPTAC/ethyl cellulose: A functionalized synthesis with enhanced adherence

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**Abstract:** In order to conform to environmental standards, the textile industry around the world is experiencing a revolution every single day. The potential of CHPTAC as a cationizing agent in the shell of microcapsules for improved functioning is investigated in this work. Microcapsules are coated on textiles with the help of binders and crosslinkers but most of them are synthetic, and non-environment friendly, making the fabric stiff and rubbing off easily. Therefore, cationizing agent-based capsules enhance adhesion on fabric and remove the need for such binders/crosslinkers. Ethyl cellulose with shear stability is an ideal material to use as a shell with CHPTAC. The latent heat of coconut oil provides thermoregulating behaviour to textiles. This research focuses on the utilization of CHPTAC as a cationizing agent in the shell to enhance ethyl cellulose/coconut oil-based capsules' sticking on textiles. Capsules' zeta size/zeta potential, morphology, composition and thermoregulating behaviour have been characterized.

**Keywords:** *Microencapsulation, CHPTAC, Ethyl Cellulose, Coconut oil, Cationizing Agent, thermoregulation*