**Synthesis Of Tea Tree Oil Microcapsules Via Microencapsulation Using Novel Technique**

**Samidha Shelar, and Chandu Madankar\***

Department of Oils, Oleochemicals and Surfactants Technology, Institute of Chemical Technology, Matunga (E), Mumbai 400019.

**\***Author for correspondence Email: [chandumadankar@gmail.com](mailto:chandumadankar@gmail.com) (Dr. Chandu Madankar)

**Abstract**

Tea tree oil (TTO) is an widely known essential oil extracted from Melaleuca alternifolia leaves naturally having antimicrobial and antibacterial activities. Due to its high volatile nature it rapidly evaporates causing loss of efficiency and shorten the effects. Microencapsulation technique was incorporated to ensure the core material is being protected from the immediate contact with the environment and offers controlled release. In this study, microencapsulation of Tea Tree Oil was done by employing complex coacervation technique using Chitosan – Gum acacia system as the coating material and utilized tannic acid as the crosslinking agent. All the materials used in this process are from natural sources which are safe for the human and the environment. In designing the operating process condition for TTO encapsulation, we found that wall ratio of 2:5 and 3.6 pH gave the best yield along with better efficiency. The proposed method studied the surface morphology of the microcapsules with an efficiency and yield of 84.50% and 69.9 % respectively.

Keywords : Tea Tree Oil, Microencapsulation, Complex Coacervation, Chitosan, Gum Acacia, Tannic Acid.