

## **Preparation and characterisation of carvacrol encapsulated in gellan gum hydrogel**

### **ABSTRACT**

Studies on plant materials as natural compound such as carvacrol (Carv) have gained much attention. Carv exhibits numerous potential as antimicrobial agent, food additives, antioxidant and etc. However, this free standing bioactive compound is unstable in the harsh environment conditions. Hence, the encapsulation technology provides protection to enhance the effectiveness in release manner. In this study, the preparation of Carv encapsulated in gellan gum hydrogel forming thin film (GG-Carv TF) was achieved by using 1.0 g of gellan gum at different concentrations of Carv (0.01-0.04 M). The FTIR spectra of GG-Carv TF revealed the combination of both functional groups from GG and Carv. The Carbon, Hydrogen and Nitrogen, CHN analysis further confirmed the encapsulation with the changes in the element percentage. Both swelling and degradation percentage increased with time and showed decreasing patterns in the range of 680.79-666.78 % and 26.83-19.15 % which can be observed as the concentration of Carv increased, respectively.

**Keyword:** Carvacrol; Encapsulation; Gellan gum hydrogel; Thin film; Natural