

## ABSTRACT

Avocado seed (AS), a by-product of avocado, contains a high level of polyphenols which contributes to total antioxidant capacities (TAC) of avocado. However, polyphenols need to be encapsulated due to their sensitivity towards environmental stress. This study only observed the effect of the presence of core, the emulsification, coacervation, and freeze-drying steps of complex coacervation, and the combination of type and ratio of encapsulating agents to the TAC of the samples. The TAC of the prepared samples were analyzed using DPPH assay. The statistical analysis was done using non-parametric tests, i.e., Mann-Whitney or Kruskal Wallis followed by Dunn's post hoc analysis. The results showed that freeze-drying and presence of core had an effect on the TAC of samples in which freeze-dried powder samples and samples with core had higher TAC value compared to liquid samples and samples without core, respectively. Meanwhile, simple coacervation, complex coacervation, and combination of type and ratio of encapsulating agents had no effect on the TAC of the sample when they were compared to freeze-dried avocado seed powder (ASP). Therefore, simple coacervated and complex coacervated samples with core composed of any type and ratio of encapsulating agent which underwent freeze-drying could be a suitable encapsulation method for ASP.

*Keywords: Avocado seed powder, Total antioxidant capacity, Encapsulation, Simple coacervation, Complex coacervation, Freeze drying, DPPH analysis*