

ABSTRACT

Avocado seed is more useful than just being a byproduct of avocado processing since it contains a lot of phenolic compounds. However, the phenolic compounds are rather prone to be damaged by environmental stress and by applying encapsulation techniques, they can be protected from the environmental stress. Thus, this study focuses on researching the effect of the presence of core and the core being encapsulated with emulsification and complex coacervation through freeze drying as the drying steps, as well as different combinations of types and ratios of encapsulating agents used to determine the total antioxidant capacity (TAC) of the samples. The TAC is expressed as a percentage of antioxidant capacity (AA%) in this study. The statistical analysis is conducted via non-parametric test; Mann-Whitney or Kruskal Wallis followed by Dunn's post hoc analysis. The results showed that freeze drying and the presence of core produced significantly different AA% with the samples that were not freeze-dried and did not contain core respectively, where the freeze-dried samples and samples that contained core possessed higher TAC than the samples that were not freeze-dried and did not contain core respectively. Meanwhile, freeze-dried samples that used W/O/W emulsion using one encapsulating agent had TAC that were not significantly different from the TAC of avocado seed powder (ASP), hence could be used as a preservation method for antioxidants. Nevertheless, the freeze-dried complex coacervation sample that used gelatin-pectin with a 1:4 ratio (TCf) and gelatin-alginate with 1:4 ratio to generate the complex coacervation were the most recommended, with TCf containing the highest AA% (91.36 ± 0.19).

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