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Encapsulation of antioxidant from coffee cherries extract using arabic gum combined with oxidized tapioca as encapsulan material : application on klentik oil

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ABSTRACT

Indonesia is the fourth largest coffee-producing countries in the world after Brazil, Vietnam and Colombia. Arabica coffee is the main traded coffee. Coffee cherry mesocarp is waste resulted from coffee processing. Other processing technologies are needed to create value added for Arabica coffee cherry. One of the utilization of coffee cherry is as natural antioxidant source. Natural antioxidant from coffee cherry extract was encapsulated with 25% suspension, with the ratio of oxidized tapioca and gum Arabic at 10:90 as encapsulation material. Further research on the molecular shape and its application to *klentik oil* which was stored for six weeks in light and dark bottles compared with synthetic antioxidant, BHT .Observation by SEM (Scanning Electron Microscope) showed that antioxidant capsules shape was round with a smooth surface. Encapsulated antioxidant with dosage of 1% was added to the klentik oil and stored for six weeks in the light and dark bottle. It showed that could inhibit defect of *klentik oil*. Increasing of peroxide value (AP) and free fatty acid value (FFA) used as parameter to detected its defect. The following was the changes in AP and FFA at *klentik oil* which was added with encapsulated antioxidant; AP : 3.625 meq/1000 g (light bottle), 2.65 meq/1000 g (dark bottle) and FFA : 1.19% (light bottle), 1.206% (dark bottle) . *Klentik oil* which was added with BHT is AP : 2.55 meq/1000 g (light bottle), 1,89 meq/1000 g and FFA : 1.213% (light bottle) dan 1.118% (dark bottle).

Keywords*:* antioxidant, coffee cherry extract, oxidized tapioca, klentik oil

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