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### **Anti-wrinkles gel containing cocoa pod extract**

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Cocoa pod is an abundant waste of cocoa industry. About 75% weight percentage of the cocoa fruits is the pod. It has variety of color which could resemble the active compound with antioxidant activity. Usually, cocoa pod has been used as fertilizer, activated carbon and potash. However, the cocoa pod was not vastly study in cosmetic application. In this research, the cocoa pods were collected from the cocoa plantation (Cocoa Research and Development Centre, Jengka, Pahang) and extracted with 80% ethanol. The Cocoa Pod Extract (CPE) has good antioxidant activities, as determined using DPPH and  $\beta$ -carotene bleaching assays, which contributed by poly-phenolic compounds. The activity of collagenase and tyrosinase enzymes, which were enzymes related to formation of wrinkles, reduced with the presence of CPE. The CPE was included in a gel-based formula at 10 wt.% and tested for its efficacy in wrinkles removal. 11 women panelists of 30 years old and above were volunteered to test the product. The results showed that skin hydration increased and wrinkles index reduced significantly after three weeks of daily application. This result amplified the value-added of cocoa pod and diversified the usage of cocoa pod which can increase the demand of cocoa and income of cocoa growers.

### **Biography**

Azila Abdul Karim is a Research Officer at the Lembaga Koko Malaysia. She specializes in cosmetic and personal care product development, halal product development, extraction process of plant materials involving solvent and supercritical fluid, stability study and efficacy of cosmetic products. She is an author of several scientific papers and actively involves in conducting research on cosmetic product development from cocoa. She has won several awards from national and international exhibition.

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