# Application of alpha-tocotrienol for detection of palm mid-fraction in dark chocolate formulation.

## ABSTRACT

Following model studies, the detection of palm mid-fraction (PMF) added to cocoa butter (CB) in chocolate formulations was investigated. Different levels of PMF (0–25%, CB basis) were added to CB in chocolate. High performance liquid chromatography was then used to detect the presence of PMF in chocolate using α-tocotrienol as an indicator. The results, in line with the model studying indicated that increasing the amount of PMF added to CB resulted in a significant ($P < 0.05$) increase in the concentration of α-tocotrienol in chocolate; a linear plot ($R^2 = 0.9837$) was obtained with standard error of 1.986. A validation test was conducted to verify the equation obtained from the regression analysis. The high $R^2$-value obtained indicated a good accuracy, reflecting a close relationship between experimental and theoretically predicted values. The applied indicator performed well beyond the level of the statutory limit of 5% PMF addition on a chocolate basis that verified the previously studied model.

**Keyword:**  Tocopherol; Tocotrienol; Cocoa butter; Palm mid-fraction.