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## Utilization of Waste from Coffee Industry for the Development of Antioxidant Rich Products

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This study aimed to transform coffee silverskin, the main waste product of coffee roasting industry that has a substantial amount of antioxidant, into antioxidant rich beverage products. The study started by observing the basic of the ground coffee silverskin, followed by various extraction ratio trials to find the suitable ratio. The resulting extract was analyzed and showed an adequate level of phenolic and antioxidant, yet bitter in taste. The formulation was started by determining the ingredients and their constraints needed to improve the overall taste and antioxidant stability, followed by a screening stage to find the correlation between the factors and responses. The optimization was done by the help of Design Expert Software, which generated two optimum formulas that matched the target and later decided based on affective test. The final formula consisted of 4.36% silverskin, 5.83% sugar, 0.22% chocolate flavor and 1.00% cyclodextrin (w/v). The analysis result showed that the newly developed coffee silverskin drink had 1219.08 mg/L of phenolic and 54.00% of DPPH• inhibition with a better stability compared to the pure extract. Based on the sensory analysis, the overall taste of the new drink had also gone through a significant improvement that led to a high acceptance level.

### Biography:

Samuel P Kusumocahyo is a lecturer and researcher in the Faculty of Life Sciences and Technology, Swiss German University, Indonesia. His current position is the Dean of the faculty covering study programs of Food Technology, Sustainable Energy & Environment, Pharmaceutical Engineering, and Biomedical Engineering. He received Bachelor & Master Degree (Dipl.-Ing) in Chemical Engineering from Aachen University (RWTH Aachen), Germany, and Doctoral Degree in Chemical Engineering & Environmental Science from Shizuoka University, Japan. He is an expert in the separation processes using membranes which are widely applied for food & beverage industries, waste treatment, water purification, chemical processes, biofuels production, etc. His recent research activities include the optimization of extraction processes of various Indonesian natural plants for the development of new source of bioactive compounds.