

Optimization of Ferulic Acid Production from Oil Palm Frond Bagasse

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Abstract Ferulic acid (FA) is an organic acid that possesses multiple physiological properties including anti-oxidant, anti-microbial, anti-inflammatory, anti-thrombosis and anti-cancer activities. The applications of FA include being the source for vanillin and preservative production, thin film for food packaging, food supplement and skin care products. Oil palm frond (OPF) is the leaf and the branch part of the oil palm tree. In Malaysia, OPF is found in abundance as it is one of the by-products of the palm oil industry. The oil palm frond bagasse (OPFB) is obtained after some treatments that include pressing and drying of OPF, of which the resulting fibre is used for subsequent processes. Choice of using enzymatic hydrolysis to produce FA is more attractive compared to conventional chemical hydrolysis as enzymatic hydrolysis mainly focuses on utilizing the reaction caused by feruloyl esterase (FAE) to release FA from polysaccharide.

Keywords: Oil palm; Frond; Bagasse; Ferulic acid; Optimization; Production