

*Analysis of Process Design for Production of Xylose Crystal Sugar from Coffee
Fruit Waste at PDP Kahyangan Jember*

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ABSTRACT

This research aims to obtain a processing unit design and business feasibility of xylose crystal sugar from coffee fruit waste. Establishment of a xylose crystal sugar processing unit will be located in Jember Regency with a space requirement of 36.4 m². The miniplant scale production capacity of 10 liters/day produces xylose crystal sugar of 7,446 g/day (2,233,650 g/year). The results of the financial aspect analysis obtained an NPV value of Rp 2,863,101,959, B/C Ratio 1.34, IRR 51%, PBP 0.234 year, BEP-Q Rp 15,565,014 and BEP-Rp Rp 22,002,480. Based on the results obtained, it can be concluded that the xylose crystal sugar processing unit is feasible to be developed because the calculation results of the financial feasibility criteria are met with NPV > 0, B/C > 1, IRR 51%, PBP of 2 months < 5 years, meaning that the capital invested can return before the project period ends in 5 years.

Keywords: Xylose, NPV, B/C, IRR, PBP, BEP