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A Comparative Study on Sedimentation and Alkaline Starch Extraction on Corn Cobs (*Zea mays*)

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ABSTRACT

This study compares the effectiveness of sedimentation and alkaline processes for extracting starch from corn cobs (*Zea mays*). The sedimentation method allows starch to settle naturally from the solution after separation from other components while the alkaline method uses a sodium hydroxide solution to break down cell walls and release starch. The parameters evaluated included starch percent yield, pH, and amylose content of extracted starch. Both methods tested positive for amylose content, indicated by the blue-black color change observed in Lugol's iodine test. Both methods produced starch with a neutral pH of 7. The sedimentation method produced a higher average yield (1.05%) than the alkaline method (0.30%). Although both methods showed similar outcomes in amylose content and pH levels, sedimentation proved to be more effective in terms of recovering a greater amount of starch. Its simpler, chemical-free process and higher yield make it a more practical, cost-effective, and environmentally sustainable option for starch extraction from corn cobs. These findings support the sedimentation method as a more efficient approach for starch recovery and suggest its potential for wider application in industrial starch production.

Keywords: alkaline, sedimentation, amylose, corn cobs, starch extraction