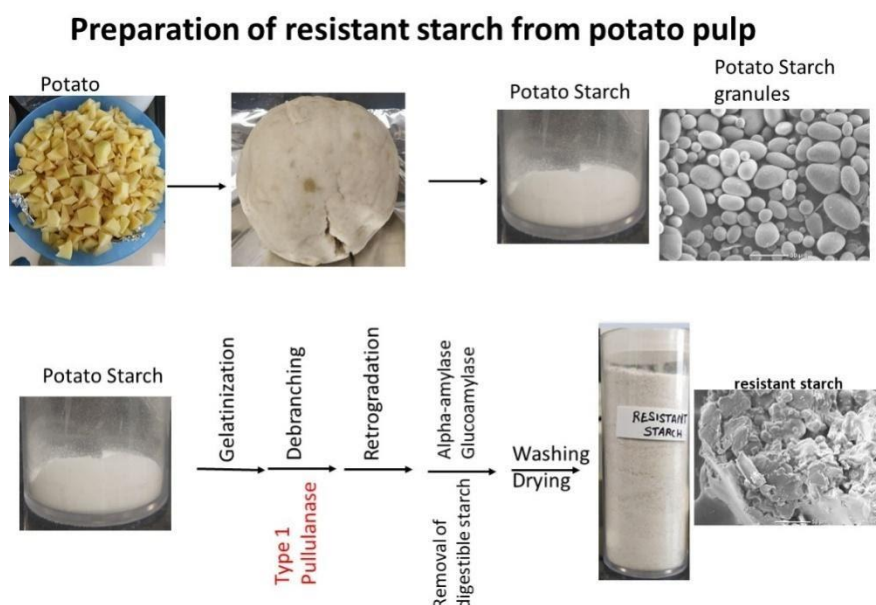


DBT-CIAB team finds a novel type 1 pullulanase for biosynthesis of type 3 resistant starch

New Delhi, March 02: Resistant starch is an indigestible carbohydrate molecule fermented by the gut microbiota, releasing desirable metabolites of health benefits. A team of DBT-Center of Innovative and Applied Bioprocessing (DBT-CIAB) has discovered a novel cold-active type 1 pullulanase by exploring the metagenomic resource generated from a thermal aquatic habitat located in the Sikkim Himalaya.



This enzyme functions in a wide range of temperature from 4°C to 50°C and 6-8 pH. This enzyme catalyzes hydrolysis of α -1,6-glycosidic bonds in the amylopectin starch, producing linear glucan chains. Retrogradation of the debranched starch transforms the linear glucan chains into a tangled mass of firm structure with enhanced crystallinity. This type 3 resistant starch is not digestible by α -amylase, and exhibits elevated thermal stability. The estimated yield of resistant starch from starch was about 45%. This invention is covered under Indian patent file number 202011013475. The study has been published in a journal of international repute, *Bioresource Technology*, 2021,320, 124288.

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