

Development of lab scale pineapple fruit juicer

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■ **ABSTRACT** : Pineapple is the third most important tropical fruit in the world after banana and citrus fruit. This fruit is highly perishable and seasonal. Juice extraction is the process by which the liquid portion of the fruit is been squeezed or forced out of the solid part of the fruit either by manual or mechanical. Automatic pineapple juicer machine can do all the process required to produce the pineapple juice that means core of the pineapple can be crushing by the machine and the pomace and juice is separated differently. In this machine we firstly cut the fruit by using rotating knife and these fruit cubes are passed through squeezing mechanism in this screw shaft rotating and juice separate and pomace are separate. In this determination of physical properties like dimensions (Length, Width, Thickness), Geometric mean diameter, sphericity, size shape, surface area and density were determined. Average length, width and thickness were 164.8 mm, 87.12 mm and 88.9 mm, respectively. Average weight of pineapple fruit was 898.8 g. Size, shape, density and sphericity of pineapple fruit were 109.68, 53.38, 1.394 and 0.64, respectively. The average is taken the weight of fruit (g), weight of waste (g), weight of juice (g) are 1191.5, 318.6 and 826.1, respectively. On this observation we come to know that juice yield (%), extraction efficiency (%), extraction loss (%), are 71.09, 70.15, and 3.91 were taken, respectively. The RPM is 2800. Powered by a 0.35 HP single phase electric motor, the machine has a capacity of 18.90 kg/h.

■ **KEY WORDS** : Fruit juice, Juice extractor, Physical properties, Pineapple, Pomace

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