

The Effect of Chitosan and Starch Types on the Physical and Mechanical Properties of Durian Peel Cellulose Biodegradable Foam

Dibimbing oleh: Ir. Wahyu Suryaningsih, M.Si

Ulfi Durrotun Nikmah

*Study Program of Food Engineering Technology
Majoring of Agriculture Technology*

ABSTRACT

This study aims (1) to determine the effect of adding chitosan on the physical and mechanical properties of biodegradable foam. (2) to determine the effect of starch type on the physical and mechanical properties of biodegradable foam. (3) to determine the effect of the combination of adding chitosan and starch on the physical and mechanical properties of biodegradable foam. This study used a completely randomized design (RAL) with 2 factors, the first factor was the concentration of chitosan and the second factor was the type of starch. The chitosan concentrations used were 0%, 1%, 2%, 3%, 4%, 5% and 6%. Meanwhile, the types of starch used are cornstarch and arrowroot. Data will be analyzed using ANOVA. If there is a significant effect then proceed with the Duncan Multiple Range Test (DMRT). Test parameters consist of physical properties (water absorption, biodegradation, thickness and density) and mechanical properties (compressive strength). The concentration of chitosan has a significant effect on the physical properties (water absorption, biodegradation, thickness and density) and mechanical properties (compressive strength) of durian skin cellulose biodegradable foam. Corn starch and arrowroot starch has a significant effect on the mechanical properties (compressive strength) of durian skin cellulose biodegradable foam. The best treatment is treatment with the addition of 6% chitosan and arrowroot starch (P2K7) with water absorption capacity (14,94%), biodegradation (12,90%), thickness (4,67 mm), compressive strength (0,91 N/mm²), density (0,77 g/cm³).

Key words: *Biodegradable foam, Chitosan, Starch*