KARAKTERISTIK RS3 PATI GEMBOLO (*Dioscorea bulbifera)* DENGAN BEBERAPA SIKLUS *AUTOCLAVING-COOLING*

ABSTRAK

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Gembolo (*Dioscorea bulbifer bulbis)* merupakan salah satu umbi-umbian yang bisa digunakan sebagai sumber karbohidrat alternatif. Umbi ini mengandung berbagai mineral dan vitamin penting serta kadar pati 62,7% dan amilosa 30,63%. Hingga saat ini, penelitian gembolo masih terbatas pada aspek karakterisasi fisik, kimia dan kandungan gizinya. Pemanfaatan pati gembolo sebagai sumber pati resisten tipe 3 (RS3) dengan metode *autoclaving-cooling* belum dilakukan.

Penelitian ini bertujuan untuk mengetahui pengaruh frekuensi siklus *autoclaving-cooling* terhadap karakteristik fisik dan kimia RS3 yang dihasilkan. Frekuensi siklus yang digunakan terdiri dari 1 sampai 5 siklus *autoclaving-cooling.* Analisis sifat fisikokimia meliputi kadar RS, kadar pati, kadar amilosa, kadar amilopektin, kadar air, morfologi granula, sifat pasting, WHC, OHC dan rendemen.

Setelah modifikasi pati gembolo dengan 1 – 5 siklus *autoclaving-cooling*, terjadi penurunan kadar air 4,49% penurunan kadar pati 9,65%. Penurunan kadar amilosa 8,56% dan peningkatan kadar RS 33,29%. Peningkatan WHC 144,22%, peningkatan OHC 2,91% dan penurunan profil pasting 7753 cP. Berdasarkan data tersebut, perlakuan 5 siklus *autoclaving-cooling* menghasilkan RS tertinggi sebesar 74 %.

Kata kunci: Amilopektin, amilosa, granula, profil pasting, SEM,

CHARACTERISTICS OF RS3 GEMBOLO STARCH (*Dioscorea bulbifera)* WITH SEVERAL AUTOCLAVING-COOLING CYCLES

ABSTRACT

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Gembolo (*Dioscorea bulbifer bulbis*) is a tuber that can be used as an alternative carbohydrate source. This tuber contains various essential minerals and vitamins, as well as a starch content of 62.7% and an amylose content of 30.63%. To date, gembolo research has been limited to its physical and chemical characterization, as well as its nutritional content. The use of gembolo starch as a source of type 3 resistant starch (RS3) using the autoclaving-cooling method has not yet been conducted.

This study aims to determine the effect of autoclaving-cooling cycle frequency on the physical and chemical characteristics of the resulting RS3. The cycle frequency used consisted of 1 to 5 autoclaving-cooling cycles. The physicochemical properties analysis included RS content, starch content, amylose content, amylopectin content, water content, granule morphology, pasting properties, WHC, OHC, starch color and yield.

After modification of gembolo starch with 1-5 autoclaving-cooling cycles, there was a decrease in water content of 4.49%, a decrease in starch content of 9.65%. A decrease in amylose content of 8.56% and an increase in RS content of 33.29%. An increase in whc of 144.22%, an increase in ohc of 2.91. A decrease in color brightness of 11.48 (becoming darker), a decrease in the pasting profile of 7753 cP. Based on these data, the treatment of 5 autoclaving-cooling cycles produced the highest RS of 74%.

Keywords: Amylopectin, amylose, granules, pasting profile, SEM,