INTISARI

PENGARUH KONSENTRASI HIDROGEN PEROKSIDA (H_2O_2), LAMA PENYINARAN UV-C, DAN VARIASI SUHU PENGERINGAN TERHADAP SIFAT FISIK TEPUNG KASAVA

Tepung kasava dianggap cocok digunakan sebagai subtitusi tepung terigu untuk mengurangi ketergantungan impor gandum. Namun demikian banyak terjadi kendala karena sifat fisik tepung kasava yang berbeda dengan sifat fisik tepung terigu. Hal ini yang melatarbelakangi banyak penilitian dilakukan terkait modifikasi tepung kasava (*modified cassava flour*). Pada penelitian ini mengkombinasikan beberapa metode perlakuan yang telah dilakukan pada penelitian sebelumnya dengan variasi yang berbeda. Penelitian ini bertujuan untuk mengetahui efek penggunaan variasi konsentrasi Hidrogen Peroksida, lama penyinaran sinar UV-C dan variasi suhu pengeringan yang bertujuan untuk mengubah sifat fisik pada tepung kasava.

Singkong yang sudah diparut difermentasi dengan cara direndam dalam larutan asam laktat selama satu jam, lalu diperas untuk dikurangi kadar airnya. Selanjutnya dilakukan proses hidrolisis dengan cara memberikan hidrogen peroksida. Konsentrasi hidrogen peroksida yang digunakan adalah 5%, 10%, dan 15%. Pada proses hidrolisis digunakan juga katalisator untuk mempercepat proses, katalisator yang digunakan adalah radiasi sinar UV-C dengan variasi lama penyinaran 1 jam, 3 jam, dan 5 jam. Setelah proses hidrolisis tahap selanjutnya adalah proses pengeringan. Proses pengeringan dilakukan sebanyak dua kali dengan dua variasi kombinasi suhu pengering, yaitu dikeringkan dengan suhu 50°C kemudian 200°C dan dikeringan dua kali dengan suhu 160°C. Proses selanjutnya adalah penggilingan dan pengayakan. Kemudian setelah bahan menjadi tepung dilakukan pengujian sifat fisik bahan seperti *fieneness modulus*, diameter rerata partikel, *bulk density,* kadar air, warna, pH, dan *baking expansion*.

Hasil penelitian menunjukan bahwa beberapa perlakuan yang diberikan memengaruhi nilai sifat fisik bahan tepung kasava. Perlakuan radiasi sinar UV-C memberikan pengaruh nyata terhadap sifat fisik bahan antara lain kadar air, *fineness modulus*, diameter rerata partikel, pH, derajat putih, *bulk density* dan *baking expansion*. Pemberian hidrogen peroksida pada tahapan modifikasi tepung kasava berpengaruh terhadap sifat fisik bahan antara lain kadar air, *fineness modulus*, diameter rerata partikel, pH, derajat putih, *bulk density* dan *baking expansion.* Perlakuan variasi suhu pengeringan memberikan pengaruh terhadap sifat fisik bahan antara lain kadar air, pH, derajat putih dan *baking expansion.* Selain itu juga diketahui bahwa tepung kasava dengan perlakuan hidrogen peroksida 10% dengan lama waktu penyinaran UVC 3 jam dan dua kali pengeringan dengan suhu 160°C merupakan perlakuan terbaik jika dibandingkan dengan perlakuan lain.

Kata kunci : Tepung kasava, penyinaran UV-C, hidrogen peroksida, suhu pengeringan, sifat fisik bahan.

ABSTRACT

EFFECT OF HYDROGEN PEROXIDES CONCENTRATION (H_2O_2), RADIATION OF UV – C, AND VARIATION OF DRYING TEMPERATURE *TO PHYSICAL OF CASSAVA FLOUR.*

Modified cassava flour (mocaf) reputed to suitable to used as substitution of wheat flour to decrease the dependence of wheat import. However, there are many obstacles because the physical characteristic of mocaf has differential with the physical characteristic of wheat flour. So, that is the background to did many research related modified of cassava flour. In this research, the researcher combined of several treatments method which has done in previous research with different of variation. The aims of this research are to find out the effect of using hydrogen peroxides concentration, the duration of radiation from UV-C rays and the variation of drying temperature that has purpose to change the physical characteristic of cassava flour.

The cassava that has grater added with lactate acid during one hour to fermentation. Then, the cassava pressed to decreasing the content of water. Furthermore, the researcher gives the hydrogen peroxides at the process of hydrolysis. The concentration of hydrogen peroxides that used in this research is 5%, 10% and 15%. In the hydrolysis process also using the catalyst to faster the process, the catalyst that used in this research is radiation from UV-C rays with the variation of radiation are one hour, three hours and five hours. After the process of hydrolysis is drying. The drying process did until twice with two variation of drying temperature combination. First, drying process at temperature 50°C and 200°C. Second, drying process did until twice at temperature 160°C. The next processes are kibbling and sieve. After the material become flour, the researcher do testing the physical characteristic such as fineness modulus, diameter on the average of particle, bulk density, content of water, color, pH and baking expansion.

The result of the research shows that several of treatment which has given can influence of the value of the physical characteristic of material toward cassava flour. The treatment of radiation from UV-C rays has the real effect toward the physical characteristic of material, such as content of water, fineness modulus, diameter on the average of particle, pH, white degree, bulk density and baking expansion. The treatment of variation from drying temperature has effect toward the physical characteristic of material, such as content of water, pH, white degree and baking expansion. Besides that, the researcher found that mocaf by the treatment of hydrogen peroxides 10% with the duration time of radiation UV-C during three hours and twice of dehydration temperature at 160°C are the best treatments than the other treatment.

Keyword: modified cassava flour, UV-C radiation, hydrogen peroxides, variation of drying temperature, the physical characteristic of material.