PENGARUH PENAMBAHAN NATRIUM METABISULFIT DALAM PROSES EKSTRAKSI GLUKOMANAN DARI TEPUNG PORANG (*Amorphophallus onchophyllus*) TERHADAP KARAKTERISTIK KIMIA DAN FISIK GLUKOMANAN

INTISARI

Tepung porang (*Amorphophallus onchophyllus*) merupakan salah satu sumber glukomanan yang potensial. Metode yang dapat digunakan untuk ekstraksi glukomanan dari tepung porang adalah ekstraksi basah. Namun, tepung porang yang dihasilkan di Indonesia merupakan hasil pengeringan *chips* dengan *sun-drying* sehingga nilai derajat putihnya rendah. Pemanasan yang dilakukan selama proses ekstraksi basah juga mampu menurunkan derajat putih dari glukomanan. Tujuan dari penelitian ini adalah meningkatkan derajat putih dari glukomanan dengan penambahan natrium metabisulfit ($Na_2S_2O_5$) serta dianalisis pengaruhnya terhadap karakteristik kimia dan fisik glukomanan yang dihasilkan. Konsentrasi $Na_2S_2O_5$ yang ditambahkan dalam penelitian ini adalah 0, 100, 200, dan 300 ppm. Glukomanan dengan natrium metabisulfit 0 ppm memiliki derajat putih 75,18%, kadar glukomanan 47,57%, kadar air 7,19%, kadar protein 2,30%, kadar lemak 0,06%, kadar abu 0,56%, residu sulfit 0 ppm, transparansi 33,2%, kelarutan 93,2316%, viskositas 11133 cP, *water holding capacity* 50,91 g air/g glukomanan, dan pH 5,57. Glukomanan dengan natrium metabisulfit 100 ppm memiliki derajat putih 75,78%, kadar glukomanan 47,66%, kadar air 7,19%, kadar protein 1,97%, kadar lemak 0,06%, kadar abu 0,60%, residu sulfit 42,66 ppm, transparansi 32,2%, kelarutan 94,04%, viskositas 11228 cP, *water holding capacity* 53,66g air/g glukomanan, dan pH 5,56. Glukomanan dengan natrium metabisulfit 200 ppm memiliki derajat putih 76,25%, kadar glukomanan 47,70%, kadar air 7,17%, kadar protein 1,90%, kadar lemak 0,06%, kadar abu 0,62%, residu sulfit 63,99 ppm, transparansi 32,4%, kelarutan 94,32%, viskositas 11989 cP, *water holding capacity* 53,67 g air/g glukomanan, dan pH 5,56. Glukomanan dengan natrium metabisulfit 300 ppm memiliki derajat putih 76,97%, kadar glukomanan 47,71%, kadar air 7,07%, kadar protein 1,87%, kadar lemak 0,05%, kadar abu 0,65%, residu sulfit 106,65 ppm, transparansi 32,9%, kelarutan 94,66%, viskositas 12900 cP, *water holding capacity* 54,18g air/g glukomanan, dan pH 5,55. Perlakuan terbaik didapatkan pada penambahan natrium metabisulfit 300 ppm di mana glukomanan memiliki derajat putih, kadar glukomanan, dan viskositas tertinggi dengan kadar air serta residu sulfit yang masih dalam standar komersial China.

Kata kunci: natrium metabisulfit, tepung porang, glukomanan

EFFECT OF SODIUM METABISULFITE IN GLUCOMANNAN EXTRACTION PROCESS FROM PORANG FLOUR (*Amorphophallus onchophyllus*) ON CHEMICAL AND PHYSICAL CHARACTERISTICS OF GLUCOMANNAN

ABSTRACT

Porang flour (*Amorphophallus onchophyllus*) is one of the potential source plants for glucomannan. The extraction method for isolating glucomannan from porang flour is through wet extraction. Unfortunately, porang flour which produced in Indonesia is mainly from sun-dried chips which has low whiteness degree. Moreover, the heating, drying, and grinding process during the extraction method might have detrimental effects on the whiteness degree of glucomannan. This study aimed to improve the whiteness degree of the glucomannan produced from the sun-dried porang flour by adding sodium metabisulfite ($Na_2S_2O_5$) in various concentration. The concentrations of sodium metabisulfite which applied in this study are 0, 100, 200, and 300 ppm. The result as follows, glucomannan with sodium metabisulfite 0 ppm has whiteness degree 75.18%, glucomannan content 47.57%, moisture 7.19%, protein 2.30%, fat 0.06%, ash 0.56%, sulfite residue 0 ppm, transparency 33.2%, solubility 93.23%, viscosity 11133 cP, water holding capacity 50.91 g water/g glucomannan, and pH 5.57. Glucomannan with sodium metabisulfite 100 ppm has whiteness degree 75.78%, glucomannan content 47.66%, moisture 7.19%, protein 1.97%, fat 0.06%, ash 0.60%, sulfite residue 42.66 ppm, transparency 32.2%, solubility 94.04%, viscosity 11228 cP, water holding capacity 53.66 g water/g glucomannan, and pH 5.56. Glucomannan with sodium metabisulfite 200 ppm has whiteness degree 76.25%, glucomannan content 47.70%, moisture 7.17%, protein 1.90%, fat 0.06%, ash 0.62%, sulfite residue 63.99 ppm, transparency 32.4%, solubility 94.32%, viscosity 11989 cP, water holding capacity 53.67 g water/g glucomannan, and pH 5.56. Glucomannan with sodium metabisulfite 300 ppm has whiteness degree 76.97%, glucomannan content 47.71%, moisture 7.07%, protein 1.87%, fat 0.05%, ash 0.65%, sulfite residue 106.65 ppm, transparency 32.9%, solubility 94.66%, viscosity 12900 cP, water holding capacity 54.18 g water/g glucomannan, and pH 5.55. The best result showed in glucomannan with sodium metabisulfite 300 ppm in which it has the highest whiteness degree, glucomannan content, and viscosity with relatively safe moisture content and sulfite residue according to China commercial standard.

Keywords: sodium metabisulfite, porang flour, glucomannan