

ABSTRACT

STUDY OF GLYCEMIC RESPONS OF SOME PURPLE SWEET POTATO PROCESSED PRODUCTS

By

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Purple sweet potato (*Ipomoea batatas L.*) is very potential to be developed as functional food. Purple sweet potato could be boiled and consumed as snack or processed into intermediate products such as flour. Further more purple sweet potato flour could be modified through partial gelatinization and retrogradation process. The combination of these processes resulted resistant starch rich-purple sweet potato flour which has a physiological effect of lowering the glycemic response. Resistant starch rich-purple sweet potato flour can used as the main ingredient for noodle products. The aim of this research was to obtain glycemic response values of purple sweet potato products such as boiled purple sweet potatoes, purple sweet potato noodles, and resistant starch rich-purple sweet potato noodles. So that we found the lowest glycemic response value. The parameters observed were the proximate analysis (moisture, ash, protein, fat, and carbohydrate), total phenolic, anthocyanin, resistant starch contents, and conversion rate of flour to sugar by enzyme α -amylase. Ten subject were involved in the determination of glycemic response. The glycemic response was determined by the area under curve (AUC) of the blood glucose after consumption

of the products and glucose syrup was used as a reference. The glycemic response data of products were analyzed using analysis of variance (ANOVA) and further tested using Duncan's multiple range to know the mean differences among products at $P < 0,05$. The results showed the resistant starch rich-purple sweet potato noodles had the lowest glycemic response with total moisture of 44,13 % ± 0,34, ash 1,38% db ± 0,16, protein 1,70% db ± 0,36, fat 0,63% db ± 0,02, carbohydrate by difference 96,29% db ± 0,38, total phenolic 327,10 ± 2,78 mg GAE/100g db, anthocyanin content 93,94 ± 0,43 mg/100g db, resistant starch content 14,29% db ± 0,17, conversion rate of flour to sugar by enzyme -amylase 52,26% ± 1,40, area under curve 3039,00, and predicted glycemic index 58,74.

Keywords: *glycemic response, purple sweet potato, purple sweet potato noodle, resistant starch*

ABSTRAK

KAJIAN RESPON GLIKEMIK BEBERAPA PRODUK OLAHAN UBI JALAR UNGU

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Ubi jalar ungu segar dapat diolah menjadi produk ubi jalar ungu rebus dan tepung ubi jalar ungu. Tepung ubi jalar ungu dimodifikasi melalui proses gelatinisasi sebagian dan retrogradasi menghasilkan tepung ubi jalar ungu kaya pati resisten yang memiliki efek fisiologis menurunkan respon glikemik. Tepung ubi jalar ungu kaya pati resisten dapat diolah menjadi produk mie ubi jalar ungu kaya pati resisten. Penelitian ini bertujuan untuk mendapatkan nilai respon glikemik pada produk olahan ubi jalar ungu seperti ubi jalar ungu rebus, mie ubi jalar ungu, dan mie ubi jalar ungu kaya pati resisten, serta menentukan satu produk olahan ubi jalar ungu yang memiliki respon glikemik terendah. Pengamatan yang dilakukan meliputi proksimat (air, abu, lemak, protein, dan karbohidrat), total fenol, kadar antosianin, kadar pati resisten, tingkat konversi tepung menjadi gula oleh enzim amilase. Penentuan respon glikemik 3 produk olahan ubi jalar ungu menggunakan 10 orang subjek dengan sirup glukosa sebagai pangan pembanding. Data respon glikemik dianalisis dengan sidik ragam dan uji lanjut Duncan pada taraf 5%. Hasil penelitian menunjukkan respon glikemik produk mie ubi jalar ungu kaya pati resisten memiliki respon glikemik terendah dengan kadar air

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44,13 % \pm 0,34, kadar abu 1,38% bk \pm 0,16, kadar protein 1,70% bk \pm 0,36, kadar lemak 0,63% bk \pm 0,02, kadar karbohidrat 96,29% bk \pm 0,38, total fenol 327,10 \pm 2,78 mg GAE/100g bk, kadar antosianin 93,94 \pm 0,43 mg/100g bk, kadar pati resisten 14,29% bk \pm 0,17, tingkat konversi tepung menjadi glukosa oleh enzim - amilase 52,26% \pm 1,40 dari total bahan, luas area di bawah kurva 3039,00, dan prediksi nilai indeks glikemik 58,74.

Kata kunci : *mie ubi jalar ungu, pati resisten, respon glikemik, ubi jalar ungu*