DEVELOPMENT OF NATURAL SEASONING POWDER FROM DAUN KESUM (polygonum minus)

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Lihat Sebelah

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RESEARCH PROJECT submitted in partial fulfillment of the requirement for the degree of Bachelor of food Science (Food Service and Nutrition)

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DECLARATION

I hereby declare that this research project is based on my original work accept the
quotation and summaries which have been duly acknowledge.

17th MAY 2007   MOHD ADAM BIN ISMAIL

Approved by,

17th Mei 2007   PUAN ZAMZAHAILA BINTI MOHD ZIN

(Supervisor)

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ABSTRACT

Kesum was known in Malaysia as herb that being used as additional material on Malay cook. Developing of dried kesum powder can make it easily to store in long period as it is hard to find fresh kesum especially in town. The objective of this study was to determine the best drying method to make kesum powder as it evaluate effect of different drying method on physicochemical and consumer acceptance. Kesum leaves, *Polygonum minus*, which was obtained from Pasar Batu Enam, Kuala Terengganu was used in this study. Hot air drying oven, vacuum drying oven and freeze drying was applied in this study. Kesum powder made by freeze drying had the lower moisture content which was $8.45\pm0.31\%$, while vacuum drying method gave the highest moisture content which was $9.69\pm0.38\%$. Freeze drying resulted in dried kesum with the lowest moisture is more favorable for longer time storage compared to other treatment. It was found that dried kesum made by freeze drying method resulted lowest water activity value which was $0.41\pm0.08a_w$ and followed by hot air drying, $0.53\pm0.01a_w$ while vacuum drying gave highest a_w which was $0.53\pm0.27a_w$ .There was no significant difference ($p<0.05$) between hot air and vacuum method but then, both shown significant different ($p<0.05$) compared to freeze drying method. For the hot air oven time vs temperature analysis, it was found that drying rates of samples were decreased shape when the drying time was increased. For all temperature involved, it can be conclude that higher drying rates occurred in early stage of drying period and its going to constant drying rates for longer drying period as it was reached its equilibrium moisture content. Freeze drying resulted lightest color and it showed significant difference ($p<0.05$) of "L" value to other drying method while vacuum oven gave darkest color compared to other samples ($p<0.05$). Freeze had showed highest mean score for all attributes in sensory evaluations compared to hot air and vacuum oven drying treatment. Compared to the fresh kesum as control samples, freeze drying never showed any significant difference while vacuum oven showed significant different ($p<0.05$) for all attributes.

Penghasilan Serbuk Bahan Perasa Semulajadi daripada Daun Kesum

(*Polygonum minus*)

ABSTRAK

Kesum telah dikenali di Malaysia sebagai herba yang biasanya digunakan sebagai bahan tambahan dalam masakan Melayu. Penghasilan serbuk kesum bermanfaat untuk membuatkannya mampu disimpan dalam masa yang lebih panjang kerana herba ini agak sukar untuk ditemui dalam bentuk segar terutamanya di kawasan bandar. Objektif kajian ini adalah untuk menentukan jenis pengeringan yang terbaik dalam menghasilkan serbuk kesum dimana kesan fizikokimia dan penerimaan pengguna diambilkira. Daun kesum, *Polygonum minus*, yang diperolehi dari Pasar Batu Enam Kuala Terengganu telah digunakan dalam kajian ini. Pengeringan udara panas, pengeringan sejuk beku dan pengeringan oven vakum telah diaplikasikan dlam kajian ini. Serbuk kesum melalui kaedah pengeringan sejuk beku mencatatkan peratus kandungan air yang terendah iaitu 8.45±0.31%, manakala pengeringan oven vakum mencatatkan nilai tertinggi iaitu 9.69±0.38%. Peratus kandungan air yang rendah menjadikan kesum yang telah dikeringkan melalui kaedah pengeringan sejuk beku adalah yang terbaik untuk penyimpanan dalam jangkamasa yang lebih panjang, berbanding kaedah lain. Kajian menunjukkan pengeringan sejuk beku memberikan nilai aktiviti air yang terendah iaitu 0.41±0.08a_w dan ia diikuti kaedah pengeringan oven udara panas, 0.53±0.01a_w manakala pengeringna oven vakum mencatatkan nilai tertinggi iaitu 0.53±0.27a_w Tiada perbezaan siginifikan antara udara panas dan juga pengeringan oven vakum, namun kedua-dua kaedah ini menunjukkan perbezaan signifikan kepda pengeringan sejukbeku ($p<0.05$). Analisis masa melawan suhu bagi pengeringan udara panas didapati bahawa kadar pengeringan sampel adalah dalam bentuk menurun apabila tempoh pengeringan ditingkatkan Bagi setiap suhu yang terlibat, dapat disimpulkan bahawa kadar pengeringan lebih tinggi pada awal tempoh pengeringan dan kadarnya semakin malar bagi tempoh pengeringan yang lebih kerana ia menghampiri tahap keseimbangan kandungan kelembapan sampel. Pengeringan sejukbeku memberikan tahap kecerahan yang tingi dalam analisis warna manakala pengeringan vakum oven memberikan hasil yang paling gelap jika dibandingkan dengan yang lain ($p<0.05$). Pengeringan sejukbeku memberikan nilai purata skor yang tetinggi dalam penilaian sensori bagi setiap atribut jika dibandingkan dengan pengeringan udara panas dan juga pengeringan vakum oven. Perbandingan nilai skor pengeringan sejukbeku dengan kesum segar menunjukkan tiada perbezaan signifikan manakala pengeringan oven vakum menunjukkan terdapatnya perbezaan signifikan bagi setiap atribut.