

## RINGKASAN

Tempurung kelapa memiliki senyawa antioksidan, antimikroba, tanin, flavonoid, dan fenol. Tempurung kelapa bisa digunakan sebagai bahan pengawet seperti dibuatnya asap cair. Bahan pengawet yang bersifat cair atau basah tidak bisa tahan lama, agar umur simpan lebih lama dapat dilakukan alternatif dengan membuatnya menjadi serbuk tempurung kelapa.

Penelitian ini merupakan penelitian eksperimental menggunakan Rancangan Acak Lengkap faktorial dengan 9 perlakuan dan 3 kali ulangan. Faktor yang diteliti adalah variasi jenis bahan pengisi (A) yaitu maltodekstrin (A1), gum arab (A2), dan dekstrin (A3) serta konsentrasi jenis bahan pengisi (B) yang terdiri dari konsentrasi 10% (B1), 15% (B2), dan 20% (B3). Bubuk tempurung kelapa dibuat menjadi ekstrak dengan metode *Microwave Assisted Extraction*. Ekstrak dilakukan *rotary evaporator* setelah itu dilakukan pembuatan serbuk menggunakan metode *foam mat-drying* dengan jenis bahan pengisi dan pengemulsi (tween 80). Pada serbuk ekstrak tempurung kelapa muda dilakukan uji kuantitatif pada fisikokimia meliputi kadar air, kadar abu, uji warna, kelarutan, aktivitas air ( $a_w$ ), total fenol, tanin, dan flavonoid. Dilakukan uji kuantitatif pada aktivitas antioksidan  $IC_{50}$ . Data variabel fisikokimia dan antioksidan diuji dengan ANOVA dan uji lanjut *Duncan Multiple Range Test* pada taraf 95%. Penentuan perlakuan terbaik menggunakan metode indeks efektivitas.

Hasil penelitian pada serbuk ekstrak tempurung kelapa muda menunjukkan bahwa perlakuan penambahan konsentrasi bahan pengisi memberikan pengaruh pada variabel total fenol, total flavonoid, tanin, aktivitas antioksidan, dan warna  $L^*$  (*Lightness*). Perlakuan penambahan variasi jenis bahan pengisi memberikan pengaruh hanya pada variabel total fenol serta perlakuan kombinasi jenis bahan pengisi dan konsentrasi memberikan pengaruh pada variabel warna  $L^*$  (*Lightness*). Perlakuan terbaik serbuk ekstrak tempurung kelapa muda diperoleh pada perlakuan penambahan dekstrin 10% dengan nilai total fenol 2,62 mg GAE/g; total flavonoid 4,89 mg GAE/g; tanin 108,13 mg TAE/g; aktivitas antioksidan 28,71 ppm; warna  $L^*$  52,76; warna  $a^*$  17,75; warna  $b^*$  33,05; kadar air 4,92%; kelarutan 94,57%; aktivitas air ( $a_w$ ) 0,58; dan kadar abu 1,30%.

Kata kunci: tempurung kelapa, bahan pengisi, bahan pengemulsi, *foam mat drying*

## SUMMARY

*Coconut shells contain antioxidant, antimicrobial, tannin, flavonoid and phenol compounds. Coconut shells can be used as a preservative such as making liquid smoke. Preservatives that are liquid or wet cannot last long, so that the shelf life is longer, you can alternatively make it into coconut shell powder.*

*This research is an experimental study using a completely randomized factorial design with 9 treatments and 3 replications. The factors studied were variations in the type of filler (A), namely maltodextrin (A1), gum arabic (A2), and dextrin (A3) as well as the concentration of the filler (B), which consisted of concentrations of 10% (B1), 15% (B2), and 20% (B3). Coconut shell powder is made into an extract using the Microwave Assisted Extraction method. The extract was carried out on a rotary evaporator after which powder was made using the foam mat-drying method with filler and emulsifier (tween 80). Quantitative physicochemical tests were carried out on young coconut shell extract powder including water content, ash content, color test, solubility, water activity (aw), total phenols, tannins and flavonoids. A quantitative test was carried out on the IC50 antioxidant activity. Data on physicochemical and antioxidant variables were tested using ANOVA and the Duncan Multiple Range Test at the 95% level. Determining the best treatment uses the effectiveness index method.*

*The results of research on young coconut shell extract powder showed that the treatment of adding filler concentration had an influence on the variables total phenols, total flavonoids, tannins, antioxidant activity, and L\* (Lightness) color. The treatment of adding variations in the type of filler has an influence only on the total phenol variable and the combination treatment of the type of filler and concentration has an influence on the color variable L\* (Lightness). The best treatment for young coconut shell extract powder was obtained in the treatment with the addition of 10% dextrin with a total phenol value of 2.62 mg GAE/g; total flavonoids 4.89 mg GAE/g; tannin 108.13 mg TAE/g; antioxidant activity 28.71 ppm; color L\* 52.76; color a\* 17.75; color b\* 33.05; water content 4.92%; solubility 94.57%; water activity (aw) 0.58; and ash content 1.30%.*

*Key words: coconut shell, filler, emulsifier, foam mat drying*