

ABSTRACT

EFFECT PROPORTION OF TURMERIC, CINNAMON AND GUAVA LEAVES CONJUGATED ON RICE USING FREE RADICAL GRAFTING (FRG) METHOD ON DIGESTIBILITY OF RICE STARCH

By

ESRA IVANI SIRINGO RINGO

This research consisteds of two stages, the first stage was aims to find the best formulation using the free radical grafting method from herbal mixtures. The aim of the second stage was to compare the best treatment results among FRG herbal rice and herbal rice without FRG. A non-factorial experiment was arranged in Complete Randomized Block Design (CRBD) with a single factor in the form of six treatment levels of the proportion of herbal turmeric, cinnamon, and guava leaf each stage divided into 2 parts, the treatments included Rapidly Digestible Starch (20 minutes) and Slowly Digestible Starch (120 minutes) with a single factor in the form of six levels of proportion treatment herbal turmeric, cinnamon, and guava leaves (C1 = without herbs C2 = 1 gram of turmeric, 0.5 grams of cinnamon, 1.5 guava leaves C3 = 1.33 grams of turmeric, 0.65 grams of cinnamon 1 gram of guava leaves C4 = 1.67 grams of turmeric, 0.83 grams of cinnamon, 0.5 grams of guava

leaves C5 = 2 grams of turmeric, 1 gram of cinnamon, 0 grams of guava leaves for stage 1).

The treatments in the stage 2 were TP = No Treatment, C1 = No Herbs, C2 = 1 gram of turmeric, 0.5 grams of cinnamon, 1.5 guava leaves, C3 = 1.33 grams of turmeric, 0.65 grams of cinnamon 1 gram of guava leaves, C3M = 1.33 grams of turmeric, 0.65 grams of cinnamon, 1 gram of guava leaves. Each treatment was replicated 4 times. The homogeneity and the additivity of the data were tested using Bartlett test and Tukey test. Analysis of variance was applied to test the effect of the treatments. The data then were tested further using the Least Significant Difference (LSD) at 5% level of significance.

The results showed that the use of the free radical grafting method was able to bind active compounds to herbal ingredients. The first phase of the research showed that the addition of the herbal mixture proportion of 2 grams of turmeric, 1 gram of cinnamon (C5). The second stage of the research showed that the addition of the proportion of herbal mixture 1.33 grams of turmeric, 0.65 grams of cinnamon, 1 gram of guava leaves (C3m) had the lowest digestibility for the second stage of research (Rapidly digestible 26.3218% and slowly digestible 46.638%) had no significant effect on the digestibility of rice starch C1.

Keywords: Cinnamon, Guava Leaf, Rice and Turmeric

ABSTRAK

PENGARUH PROPORSI KUNYIT, KAYU MANIS DAN DAUN JAMBU BIJI YANG DIKONJUGASIKAN PADA NASI MENGGUNAKAN METODE *FREE RADICAL GRAFTING (FRG)* TERHADAP DAYA CERNA PATI NASI

Oleh

Esra Ivani Siringo Ringo

Penelitian ini terdiri dari dua tahap, tahap I bertujuan untuk mencari formulasi terbaik menggunakan metode *Free radical grafting* dari campuran herbal. Tahap II bertujuan untuk membandingkan hasil daya cerna perlakuan terbaik dari daya cerna antara nasi herbal FRG dengan nasi herbal tanpa FRG. Metode yang digunakan pada penelitian ini adalah rancangan acak kelompok lengkap (RAKL) untuk kedua tahap, dengan faktor tunggal berupa enam taraf perlakuan proporsi herbal kunyit, kayu manis, dan daun jambu biji (C1 = tanpa herbal C2 = 1 gram kunyit, 0,5 gram kayu manis, 1,5 daun jambu biji C3 = 1,33 gram kunyit, 0,65 gram kayu manis 1 gram daun jambu biji C4 = 1,67 gram kunyit, 0,83 gram kayu manis, 0,5 gram daun jambu biji C5 = 2 gram kunyit, 1 gram kayu manis, 0 gram daun jambu biji, untuk tahap 1)

(TP = Tanpa Perlakuan, C1 = Tanpa Herbal, C2 = 1 gram kunyit, 0,5 gram kayu manis, 1,5 daun jambu biji, C3 = 1,33 gram kunyit, 0,65 gram kayu manis 1 gram daun jambu biji, C3M = 1,33 gram kunyit, 0,65 gram kayu manis, 1 gram daun jambu biji, untuk tahap 2)

dengan empat ulangan. Homogenitas data diuji dengan uji Bartlet dan adivitas data diuji dengan uji Tuckey. Analisis ragam dilakukan untuk mendapatkan pendugaan ragam galat. Untuk mengetahui perbedaan antara formula data diuji lebih lanjut dengan uji Beda Nyata Terkecil (BNT) pada taraf nyata 5%. Penelitian tahap I menunjukkan bahwa penambahan proporsi campuran herbal 2 gram kunyit, 1 gram kayu manis (C5) memiliki daya cerna terendah untuk penelitian tahap I (*Rapidly digestible* 49, 3828% dan *slowly digestible* 51, 2067%) tidak berpengaruh nyata terhadap tingkat daya cerna pati nasi C1 tanpa herbal. Penelitian tahap II menunjukkan bahwa penambahan proporsi campuran herbal 1,33 gram kunyit, 0,65 gram kayu manis, 1 gram daun jambu biji (C3m) memiliki daya cerna terendah untuk penelitian tahap II (*Rapidly digestible* 26,3218% dan *slowly digestible* 46,638%) tidak berpengaruh nyata terhadap tingkat daya cerna pati nasi C1.

Kata Kunci: Daun Jambu Biji, Kayu Manis, Kunyit, dan Nasi