

## Abstrak

# TOTAL FENOLIK, FLAVONOID, DAN MUTU HEDONIK MINUMAN SERBUK WIJAGUM (WIJAYAKUSUMA, JAHE EMPRIT, GULA SORGUM) SEBAGAI ALTERNATIF MINUMAN DIABETES MELITUS TIPE 2

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**Latar belakang:** Alternatif minuman fungsional diperlukan sebagai penunjang pengelolaan diabetes melitus tipe 2. Wijayakusuma dan jahe emprit merupakan sumber fenolik dan flavonoid yang berpotensi sebagai minuman serbuk yang dibuat melalui kristalisasi dengan bantuan gula sorgum. Penelitian ini bertujuan mengetahui pengaruh konsentrasi wijayakusuma, jahe emprit, dan interaksinya terhadap total fenolik, flavonoid, dan mutu hedonik.

**Metodologi:** Penelitian eksperimental ini menggunakan Rancangan Acak Kelompok (RAK) dengan 2 faktor, yaitu konsentrasi wijayakusuma : air (8%,12%,16%) dan jahe emprit : air (8% dan 16%). Serbuk Wijagum diukur kadar fenolik (Follin–Ciocalteu), flavonoid (Kolorimetri), mutu hedonik (*aftertaste*, aroma, rasa, warna). Data fenolik dan flavonoid diuji dengan Anova, dilanjut dengan DMRT jika terdapat signifikansi pada level 5%. Data mutu hedonik diuji dengan Friedman, dilanjut dengan Wilcoxon

**Hasil Penelitian:** Rentang kadar fenolik serbuk Wijagum 131 - 197 mg GAE/g. Sedangkan rentang kadar flavonoid serbuk Wijagum 0,90 – 1,2 mg QE/g. Konsentrasi wijayakusuma tidak berpengaruh nyata pada kadar fenolik dan flavonoid ( $p>0,05$ ), konsentrasi jahe emprit berpengaruh nyata ( $p<0,05$ ) pada kadar fenolik namun tidak pada flavonoid. Interaksi konsentrasi wijayakusuma dan jahe emprit berpengaruh nyata pada kadar fenolik ( $p<0,05$ ), namun tidak pada flavonoid. Konsentrasi wijayakusuma, jahe emprit, dan interaksinya berpengaruh nyata pada semua atribut mutu hedonik warna, aroma, rasa, dan *aftertaste* ( $p<0,001$ ).

**Kesimpulan:** Formula terbaik minuman serbuk Wijagum terbuat dari 16% konsentrasi wijayakusuma : 16% jahe emprit mengandung total fenolik 161,42 mg GAE/g, flavonoid 1,11 mg QE/g, skor atribut *aftertaste* 3,66 (baik), rasa 3,12 (cukup pedas dan manis), aroma 3,48 (cukup beraroma rempah), dan warna 4,26 (coklat muda).

**Kata kunci:** Wijayakusuma, Jahe Emprit, Fenolik

## Abstract

### TOTAL PHENOLIC, FLAVONOID, AND HEDONIC QUALITY OF WIJAGUM POWDERED DRINK (WIJAYAKUSUMA, EMPRIT GINGER, SORGHUM SUGAR) AS AN ALTERNATIVE DRINK FOR TYPE 2 DIABETES MELLITUS

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**Background:** Functional beverage alternatives are needed to support the management of type 2 diabetes mellitus. Wijayakusuma and ginger are sources of phenolics and flavonoids that have the potential to be used in powdered beverages made through crystallization with the help of sorghum sugar. This study aimed to determine the effect of wijayakusuma, ginger, and their interaction on total phenolic, flavonoid, and hedonic quality.

**Methods:** This experimental study used a Randomized Block Design (RBD) with two factors, namely wijayakusuma concentration: water (8%, 12%, 16%) and ginger emprit: water (8% and 16%). Wijagum powder was measured for phenolic content (Follin–Ciocalteu), flavonoids (Colorimetry), and hedonic quality (aftertaste, aroma, taste, color). Phenolic and flavonoid data were tested with Anova, followed by DMRT if there was significance at the 5% level. Hedonic quality data were tested with Friedman, followed by Wilcoxon.

**Results:** Range of phenolic content of Wijagum powdered is 131 – 197 mg GAE/g. Meanwhile range of flavonoid content of Wijagum Powdered is 0.90 – 1.20 mg QE/g. The concentration of wijayakusuma had no significant effect on phenolic and flavonoid content ( $p > 0.05$ ), while the concentration of ginger had a significant effect ( $p < 0.05$ ) on phenolic content but not on flavonoid content. The interaction between wijayakusuma and ginger emprit concentrations had a significant effect ( $p < 0.05$ ) on phenolic content but not on flavonoid content. Wijayakusuma and ginger emprit concentrations and their interaction had a significant effect on all hedonic quality attributes of color, aroma, taste, and aftertaste ( $p < 0.001$ ).

**Conclusion:** The best formula for Wijagum powdered drink is made from 16% wijayakusuma concentration: 16% ginger emprit containing total phenolic 161.42 mg GAE/g, flavonoids 1.11 mg QE/g, aftertaste attribute score of 3.66 (good), taste 3.12 (moderately spicy and sweet), aroma 3.48 (moderately aromatic), and color 4.26 (light brown).

**keywords:** Wijayakusuma, Ginger, Phenolic