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**FORMULASI DAN UJI AKTIVITAS ANTIOKSIDAN SERBUK INSTAN  
JAHE MERAH (*Zingiber Officinale Variates Rubrum*) DAN JAHE EMPRIT  
(*Zingiber Officinale Variates Amarum*)**

**ABSTRAK**

**Latar belakang :** Jahe merupakan komoditas yang diperdagangkan secara luas. Kandungan seperti gingerol dan shogaol merupakan metabolit sekunder yang berpotensi sebagai antioksidan. Jahe sering dikonsumsi dalam bentuk minuman seperti serbuk instan yang bermanfaat untuk menghangatkan tubuh. Penelitian ini bertujuan untuk melakukan formulasi dan pengujian aktivitas antioksidan pada serbuk instan jahe merah dan jahe emprit.

**Metode :** Metode filtrasi dan kristalisasi digunakan pada pembuatan serbuk instan jahe. Pengujian stabilitas fisik dengan penyimpanan pada suhu ruang dan *climatic chamber*. Aktivitas antioksidan diuji menggunakan metode ABTS dengan vitamin C sebagai kontrol positif yang diukur menggunakan spektrofotometer UV-Vis dan  $IC_{50}$  sebagai parameter.

**Hasil :** Hasil uji stabilitas fisik serbuk instan jahe dengan penyimpanan suhu ruang dan *climatic chamber* pengujian waktu alir F1 (1,44 detik; 2,01 detik) F2 (1,56 detik; 1,65 detik) F3 (2,23 detik; 2,10 detik), sudut diam F1 (25,45°; 29,54°) F2 (24,39°; 27,11°) F3 (29,38°, 30,86°) dan waktu larut F1 (1:38 detik; 1:23 detik) F2 (1:08 detik 1:00 detik) F3 (1:17 detik; 1:17 detik). Kadar air ketiga formula memenuhi syarat dan hasil kadar abu tidak memenuhi syarat SNI. Uji aktivitas antioksidan pada sampel serbuk dan larutan F1 (92,32 ppm; 42,60 ppm) F2 (82,68 ppm; 46,31 ppm) dan F3 (91,51 ppm; 48,49 ppm).

**Kesimpulan :** Formulasi dengan variasi jenis jahe pada uji waktu alir, sudut diam waktu larut dan kadar air memiliki karakteristik yang memenuhi syarat kecuali kadar abu yang tidak memenuhi standar SNI. Aktivitas antioksidan yang dinyatakan dengan nilai  $IC_{50}$  pada setiap formulasi berbeda. Kategori  $IC_{50}$  sampel serbuk yaitu kuat dan sampel larutan sangat kuat.

**Kata kunci :** Serbuk instan, Jahe merah, Jahe emprit, Antioksidan.

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**FORMULATING AND TESTING ANTIOXIDANT ACTIVITY OF  
INSTANT RED GINGER (*Zingiber Officinale Variates Rubrum*) AND  
EMPRIT GINGER (*Zingiber Officinale Variates Amarum*)**

**ABSTRAK**

**Background :** Ginger is a widely traded commodity. Ingredients such as gingerol and shogaol are secondary metabolites that have the potential as antioxidants. Ginger is often consumed in the form of drinks such as instant powder which is useful for warming the body. This study aims to formulate and test the antioxidant activity of instant red ginger and emprit ginger powder.

**Methods :** Filtration and crystallization methods are used in the manufacture of instant ginger powder. Physical stability testing by storage at room temperature and climatic chamber. Antioxidant activity was tested using the ABTS method with vitamin C as a positive control measured using a UV-Vis spectrophotometer and IC<sub>50</sub> as parameters.

**Result :** The results of physical stability test of instant ginger powder with storage at room temperature and climatic chamber testing flow time F1 (1.44 seconds; 2.01 seconds) F2 91.56 seconds; 1.65 seconds) F3 (2.23 seconds; 2.10 seconds), angle of repose F1 (25.45°; 29.54°) F2 (24.39°; 27.11°) F3 (29.38° , 30.86°) and dissolving time F1 (1:38 sec; 1:23 sec) F2 (1:08 sec 1:00 sec) F3 (1:17 sec; 1:17 sec). The water content of the three formulas met the requirements and the results of the ash content did not meet the requirements of SNI. Antioxidant activity in powder and solution samples F1 (92.32 ppm; 42.60 ppm) F2 (82.68 ppm; 46.31 ppm) and F3 (91.51 ppm; 48.49 ppm).

**Conclusion :** The results of physical stability test of instant ginger powder with storage at room temperature and climatic chamber testing flow time F1 (1.44 seconds; 2.01 seconds) F2 91.56 seconds; 1.65 seconds) F3 (2.23 seconds; 2.10 seconds), angle of repose F1 (25.45°; 29.54°) F2 (24.39°; 27.11°) F3 (29.38° , 30.86°) and dissolving time F1 (1:38 sec; 1:23 sec) F2 (1:08 sec 1:00 sec) F3 (1:17 sec; 1:17 sec). The water content of the three formulas met the requirements and the results of the ash content did not meet the requirements of SNI. Antioxidant activity in powder and solution samples F1 (92.32 ppm; 42.60 ppm) F2 (82.68 ppm; 46.31 ppm) and F3 (91.51 ppm; 48.49 ppm).

**Conclusion:** The formulation with variations in the type of ginger in the flow time test, repose angle of dissolving time and water content has characteristics that meet the requirements except for the ash content which does not meet the SNI standard. The antioxidant activity expressed by the IC<sub>50</sub> value in each

formulation was different. The IC50 category of powder samples is strong and the solution sample is very strong.

**Key words :** Ginger instant powder, Red ginger, emprit ginger, Antioxidant.