

## ABSTRACT

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### **DEVELOPMENT OF FUNCTIONAL BEVERAGE MADE FROM KESUM LEAVES (*Polygonum minus* H.) AND MINT LEAVES (*Mentha arvensis* L.) EXTRACT WITH STEVIA (*Stevia rebaudiana* B.)**

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(xvii + 73 pages: 9 tables, 16 figures, and 27 appendices)

*Kesum leaves (Polygonum minus H.) and Mint leaves (Mentha arvensis L.) are known for having beneficial effects towards human health due to high antioxidant activity. Stevia (Stevia rebaudiana B.) is a sweetener with zero calorie. The aim of this study was to develop functional beverage from kesum and mint leaves aqueous extract with stevia that was preferable and expected to help in fulfilling the antioxidant needs for the body. Kesum leaves aqueous extract was combined with mint leaves aqueous extract with different ratios (10:90, 20:80, 30:70) and different concentrations of stevia (200, 400, 600 ppm). The beverages were analyzed for its physicochemical characteristics (color, viscosity, pH, total soluble solids). Sensory analysis (color, aroma, taste, aftertaste, viscosity, overall acceptance) was also conducted to select the most preferred formula by 70 panelists. The selected formula is beverage with ratio of kesum leaves aqueous extract-mint leaves aqueous extract of 20:80 and stevia concentration at 600 ppm. The  $IC_{50}$  value, total phenolic content, and total flavonoid content of the beverage are  $12.35 \pm 0.244$  ppm in dry matter,  $1.97 \pm 0.067$  mg GAE/ml beverage, and  $0.74 \pm 0.033$  mg QE/ml beverage, respectively. Nutritional compositions of the beverage are 0.05% fat, 0.08% protein, 0.12% ash, 0.28% carbohydrate, and 99.47% moisture content.*

**Keywords:** *antioxidant activity, functional beverage, kesum leaves, mint leaves, stevia, total flavonoid content, total phenolic content*

**References:** 107 (2001-2017)