

## Free Radical Study of Papua's Candy as the Consumption Culture of the Papuans

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**Abstract :** Papua's candy is one of Indonesia's indigenous consumption consisting of areca nut (*Areca catechu*), forest betel fruit (*Piper aduncum*), and  $\text{CaCO}_3$ . This research aims to determine the concentration of tannins in areca nut, alkaloids in areca nut, flavonoids in forest betel fruit; detect their interaction and  $\text{CaCO}_3$ ; also to form a standardize consumption recommendation. The research method was including DPPH assay for Papua's candy mixture, which resulted in  $\text{IC}_{50}$  value. Data analysis used is mathematical linear regression for each experiment. The test result of alkaloid is a  $R_f$  value of 0.773, while concentration of tannin and flavonoid are 0.603 mgGAE/g and 125.402 gQE/g, respectively. The  $\text{IC}_{50}$  value shows number of 3.0403, showing high antioxidant capacity. Other antioxidant assays were being studied using literature review, namely trolox and oxygen radical absorbance capacity, to figure out interaction among the bioactive compounds. It turned out that the interaction detected is antagonistic, which means the compound that is joined already has a stable molecular structure so that could reduce free radicals by donating hydrogen atoms. The recommendation consumptions given are 4 areca nuts, 5 forest betels, and 1 gram of lime betel. Therefore, Papua's candy has its potential to be developed into functional food.

**Keywords :** antioxidant, bioactive compounds interaction, free radical, Papua's candy

**Conference Title :** ICAFNS 2022 : International Conference on Agrobiotechnology, Food and Nutritional Science

**Conference Location :** London, United Kingdom

**Conference Dates :** July 28-29, 2022