ANTIMICROBIAL, ANTIOXIDANT AND PHYTOCHEMICAL PROPERTIES OF ETHANOLIC AND WATER EXTRACTS OF SELECTED LOCAL SPICES FROM MIAGAO, ILOILO

YVONNE GRACE M. BESINGA

An Undergraduate Thesis Presented
to the Department of Chemistry
College of Arts and Sciences
University of the Philippines Visayas

In Partial Fulfilment of the Requirements
for the Degree of
Bachelor of Science in Chemistry

JUNE, 2016

ABSTRACT

Spices such as garlic, pepper and turmeric are indispensable in the daily food preparation and are reported to have compounds which prevent the microbial spoilage of food. This study evaluates the antimicrobial and antioxidant activities as well as the phytochemical properties of the ethanol and aqueous spice extracts of garlic, pepper and turmeric. The antioxidant activity was performed using 1,1-diphenyl-2-picryl-hydrazyl (DPPH) Radical Scavenging Method and the antimicrobial activity was evaluated by Disk Diffusion Assay. Phytochemical compounds tested were alkaloids, flavonoids, terpenoids, phenol and saponins.

In decreasing order, the potency of the antioxidant activities showed Ascorbic acid > turmeric ethanol extract >pepper water extract> pepper ethanol extract> turmeric water extract> garlic ethanol extract> garlic water extract. The antimicrobial activity was highest in turmeric aqueous extract in terms of mean inhibition zone (7.5±2.10) against *E. coli.* The most effective treatment against *B. subtilis* was turmeric ethanol with highest mean inhibition zone (6.87±1.13). And for *S. aureus*, garlic ethanol extract has the highest mean inhibition zone (7.80±1.32). Phytochemical screening tests showed that in all treatments, the most abundant phytochemical were alkaloids and terpenoids. This study indicates that the spices like garlic, pepper and turmeric have antimicrobial and antioxidant activity.