



**ANTIBACTERIAL ACTIVITY, TOTAL PHENOLIC CONTENT AND  
ANTIOXIDANT CAPACITY OF A GREEN MICROALGA *Desmodesmus* sp.  
(U-AU2) FROM LOS BAÑOS, LAGUNA (PHILIPPINES)**

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**ABSTRACT** – Methanolic extract of a colonial green microalga *Desmodesmus* sp. (U-AU2) isolated from a rock surface of a cement wall of a building found in Los Baños, Laguna (Philippines), was subjected to microtiter plate dilution assay against a wide spectrum of bacteria. U-AU2 exhibited pronounced activity against Gram-positive bacteria, *Staphylococcus aureus* with minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of 31.25 and 125.00 µg/ml, respectively. It was moderately active against *Listeria monocytogenes*, Methicillin-Resistant *S. aureus* and *Pseudomonas aeruginosa* (MIC = 250 µg/ml) as well as *Aeromonas hydrophila* (MIC = 1000 µg/ml). Minimum bactericidal concentration (MBC) of 1000 µg/ml was observed against *L. monocytogenes*, Methicillin-Resistant *S. aureus*, *A. hydrophila* and *P. aeruginosa*. On the other hand, no antibacterial activity was observed against *Enterobacter aerogenes*, *Salmonella typhimurium* and *Escherichia coli*. Phenolic content of the methanolic extract was determined using Folin-Ciocalteu reagent and found to have total phenolic content of 652.66 µg GAE/ml. Antioxidant activity was evaluated using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging activity assay and copper reduction antioxidant capacity (CUPRAC) assay. Relative antioxidant efficiency showed that U-AU2 exerted potent radical scavenging activity and high ability of reducing copper ions from Cu (II) to Cu (I) in a concentration dependent manner. The findings further revealed that the copper ion chelating ability as well as the radical scavenging activity of the extracts were dose-dependent and positively correlated to their phenolic content. The results of this study showed that U-AU2 could be used as alternative source of bioactive compounds for pharmaceutical industry.

*Keywords: methanolic extract; phenolic content; antioxidant activity; antibacterial activity*



JOURNAL OF NATURE STUDIES  
(formerly Nature's Bulletin)  
ISSN: 1655-3179

**To cite this paper:** Arguelles, E. D. L. R., Laurena, A. C., Martinez-Goss, M. R., and Monsalud, R. G. 2017. Antibacterial Activity, Total Phenolic Content and Antioxidant Capacity of a Green Microalga *Desmodesmus* sp. (U-AU2) from Los Baños, Laguna (Philippines). *Journal of Nature Studies*. 16 (2): 1-13