

¹³C Nuclear Magnetic Resonance Phytochemical Profiling of the *In Vitro* Antidiabetic Potential

of *Vitex negundo* L. Myrnille Joy B.

Zabala^{1,3}, Lolita G. Lagurin² and

Fabian M. Dayrit^{1,2}

¹Department of Chemistry, School of Science and Engineering, Ateneo de Manila University, Quezon

City; ²National Chemistry Instrumentation Center, Ateneo de Manila University, Quezon City;

³Chemistry Department, Adventist University of the Philippines, Cavite;
*fdayrit@ateneo.edu

Abstract: *Vitex negundo* has been known since ancient times as a medicinal plant. The objective of this study is to investigate the effect of methanol and ethanol extracts, and ethyl acetate, chloroform and aqueous fractions of *Vitex negundo* using an *in vitro* model to test glucose diffusion and to determine the phytochemical profile of the extracts and fractions using ¹³C nuclear magnetic resonance (NMR) spectroscopy. The chloroform fractions, ethyl acetate-EtOH and ethyl acetate-MeOH gave the highest inhibitory effect on both the diffusion activities *in vitro*. Retardation of glucose diffusion suggests that *V. negundo* has the potential to lower postprandial glucose. Correlation analysis of the ¹³C NMR profile with retardation activity suggests that compounds containing glycosidic residues may be responsible for the glucose retardation activity. This is the first example where activity has been correlated with specific structural features of compounds from a crude extract using ¹³C NMR chemical shifts to assist in the identification of active compounds.

Keywords: *Vitex negundo*, *in vitro*, glucose diffusion retardation index, antidiabetic, ¹³C NMR