

## Inhibition of Lipopolysaccharide *E. coli*-induced acute lung injury by extracted *Antidesma bunius* (L.) Spreng fruits as compared to Fluticasone Propionate, a corticosteroid

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### Abstract

The hallmark of Acute Lung Injury/Acute Respiratory Distress Syndrome (ALI/ARDS) is inflammation-induced alveolar-vascular barrier destruction and neutrophilic infiltration that leads to the formation of cytokines and oxygen radicals. The objective of the study is to investigate the protective and toxicological effects of *Antidesma bunius* (L.) Spreng [Bignay] in murine model of Lipopolysaccharide *E. coli* (LPS)-induced ALI and compared with Fluticasone Propionate (FP), a synthetic corticosteroid. We showed that extracted Bignay fruits have high amount of phenols, steroids and flavonoids but insignificant amount of heavy metals and aflatoxins. BALB/c mice of either sex were divided into 4 groups in the ALI mouse model; Group 1: vehicle control; Group 2: LPS alone; Group 3: Bignay + LPS; and Group 4: FP + LPS. Bignay and FP were administered via intraperitoneal injection while LPS was given intra-tracheally. Biomarkers of ALI such as total lung inflammatory cell count, total lung protein content, lung edema and interleukin-6 (IL-6) secretion were measured 24 hrs after vehicle control or LPS treatment. Compared to vehicle controls, LPS caused significant increased in all measured biomarkers of ALI in samples collected from bronchoalveolar lavage fluid and were significantly attenuated by Bignay fruit extract or FP. Pulmonary vascular leakage caused by LPS was also evaluated after injection with Evans blue dye, an indication of lung injury. Extracted Bignay fruits or FP when given to mice 2 hrs after LPS administration substantially decreased the pulmonary vascular leak. Our findings are the first evidence demonstrating the preventive and non-toxic effects of extracted Bignay fruits in a murine model of LPS-induced ALI. The results could be attributed to the presence of active secondary metabolites such as flavonoids, phenols and steroids. It is also evident that extracted Bignay fruits are as effective as FP, well-established steroid, in blocking the biomarkers of ALI caused by LPS.



### Biography

Prof. Maria Nilda M Munoz is currently performing as a Scientist-in-residence & medical scientist at Cagayan State University, Philippines. She has a h- index of 34 and has published nearly 202 papers across various scientific journals. She has also involved in nearly 220 scientific abstracts in which most of them received rave reviews from the scientific community. She is also a Honorary member of the Philippine foundation for lung, health, research and development and also the inventor of MCL-3G1, MCL-2A5 and MCL-1B7. Her expertise are in the field of Lung Disorders, Natural Products, Diabetes and Cancer; just to name a few.

### Publications

- Salmeterol Blocks Cell Migration Caused by IL-8 in Human Polymorphonuclear Leukocytes In Vitro
- Roles of Trp31 in high membrane binding and proinflammatory activity of human group V phospholipase A2
- Eosinophil chemotaxis inhibited by 5-lipoxygenase blockade and leukotriene receptor antagonism
- Group V phospholipase A2 induces leukotriene biosynthesis in human neutrophils through the activation of group IVA phospholipase A2
- Epithelium-dependent contraction of airway smooth muscle caused by eosinophil MBP



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