

# Hydroethanolic Extract of *Lampaya Medicinalis* Phil. (Verbenaceae) Decreases Proinflammatory Marker Expression in Palmitic Acid-Exposed Macrophages

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### Abstract

**Background:** Obesity is a major health problem associated with increased comorbidities, which are partially triggered by inflammation. Proinflammatory macrophage infiltration in adipose tissue of individuals with obesity increases chronic inflammation. Obesity is associated with elevated plasma levels of saturated fatty acids, such as palmitic acid (PA), which promotes inflammation in vivo and in vitro. Infusions of *Lampaya medicinalis* Phil. (Verbenaceae) are used in the folk medicine of Northern Chile to counteract inflammation of rheumatic diseases. Hydroethanolic extract of lampaya (HEL) contains spectrophotometrically defined compounds that may contribute to the observed effect on inflammation.

**Methods:** We evaluated the phytochemical composition of HEL by high-performance liquid chromatography coupled to diode array detection (HPLC-DAD) and liquid chromatography-electrospray ionization-tandem mass spectrometry (LC-ESI-MS/MS). We assessed whether the exposure to HEL affects PA-induced expression of proinflammatory factors in THP-1 macrophages.

**Results:** HPLC-DAD and LC-ESI-MS/MS analyses showed the presence of considerable amounts of flavonoids in HEL. The PA-induced phosphorylation of the inflammatory pathway mediators IKK and NF-kappa B, as well as the elevated expression and secretion of proinflammatory cytokines (IL-6, TNF-alpha), were reduced in cells pre-exposed to HEL.

**Conclusion:** These findings give new insights about the effect of HEL reducing IKK/NF-kappa B proinflammatory pathway, likely explained by the number of flavonoids contained in the extract. More

studies would be needed to define the possible role of Lampaya as a preventive approach in subjects with obesity whose circulating PA might contribute to chronic inflammation.

### Palabras clave

**Palabras clave de autor:**[Hydroethanolic extract of Lampaya](#); [inflammation](#); [cytokines](#); [THP-1 macrophages](#); [palmitic acid](#); [obesity](#)

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