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Antiprotozoal Activity Against *Trypanosoma cruzi* (Chagas Disease) of Constituents of *Lippia graveolens* Kunth (Mexican Oregano)

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Chagas disease is caused by the protozoan parasite *Trypanosoma cruzi*. This disease is also known as American trypanosomiasis and approximately 6-7 million people are currently infected (WHO, http://www.who.int/mediacentre/factsheets/fs340/en/). Due to the side-effects and the resistance that pathogenic protozoa show against common antiparasitic drugs (e.g., Nifurtimox), growing attention has been paid to plants used in traditional medicine around the world to find new antiprotozoal agents. We reported shortly about the antiprotozoal activity *in vitro* against *T. cruzi* of the methanolic extract of *Lippia graveolens* Kunth (Molina-Garza et al., 2014, *Acta Tropica*, 136, 14-18). In this study, we are reporting the structure elucidation of three compounds isolated from this plant with significant antiprotozoal activity *in vitro* against *T. cruzi*.

The following work-up of the methanol extract of *L. graveolens* afforded (**1**)carvacrol, (**2**)sakuranetin and (**3**)naringenin using several chromatographic techniques. Structural elucidation of the isolated compounds was based on spectroscopic/spectrometric analyses (IR; ^{1}H- and ^{13}C-NMR; MS) and comparison with literature data. Cultured *T. cruzi* epimastigotes were incubated for 96 h with different concentrations of the compounds. The inhibitory concentration (IC_{50}) was determined for each compound via a colorimetric method.

The compounds showed significant antiprotozoal activity against *T cruzi* epimastigotes: carvacrol (100 % inhibition, IC_{50} 24.91 µg/mL), sakuranetin (96 % inhibition, IC_{50} 39.56 µg/mL) and naringenin (98 % inhibition, IC_{50} 50.34 µg/mL).

The IC_{50} values of the compounds are less effective than Nifurtimox (IC_{50} 10 µg/mL), but they may represent new bioactive compounds for the treatment of trypanosomiasis.

Biography:

Dr. Ramiro Quintanilla Licea was born in Cerralvo, Nuevo León, Mexico. He has got a degree in Industrial Chemistry (1977) and a master's degree in organic chemistry (1979), both degrees from the Universidad Autónoma de Nuevo León (Mexico). He made his Ph.D. in organic chemistry at the University of Frankfurt am Main, in the German Federal Republic (1988). He is currently involved in research projects regarding Mexican plants with anticancer, antiprotozoal and antidiabetic activity.