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A new anthraquinone from *Xanthoria ectaneoides and its effect on tau protein aggregation.*

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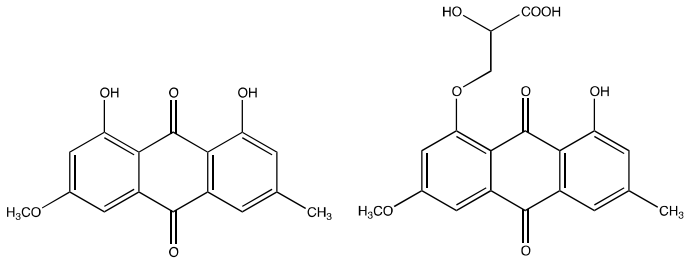
Tau protein is a microtubule-associated protein, which is involved in stabilizing microtubules mainly. The hallmark of development in AD (Alzheimer's diseases) is associated to protein aggregation (Farias, Cornejo et al. 2011). Once, tau protein is detached from microtubules, it increases its degree of protein phosphorylation resulting in disturbance of microtubules formation and aggregation of tau protein increases neurofibrillary tangles (NFTs) in cells (Avila, Santa-Maria et al. 2006).

Objective: To search new secondary metabolites which are able to either stop or prevent abnormal protein aggregation process.

Methodology: Using a combination of chromatographic techniques based on Sephadex LH-20, SiO_2, and reverse phase (RP-C18) was isolated a new anthraquinone **2** of a methanolic extract from *Xanthoria ectanoides*. Compound **2** was identified by spectroscopic methods mainly 1D and 2D NMR.

Results: Starting from 35g of *Xanthoria ectanoides* was isolated parietin **1** (500mg) and the new compound **2** (5mg). The ^{1}H-NMR spectrum of **2** showed typical signals for a anthraquinone: δ 7.83 (d, *J*= 1.2 Hz), δ 7.38 (brs); δ 7.30 (d, *J*= 2.5 Hz) and δ 7.83 (d, *J*= 2.5 Hz). Also, it was showed signals for a methoxy at δ 4.02 (s); a methyl at δ 2.20 (s); and a hydroxypropionate at δ 5.3 m; δ 4.84 (d, *J*= 4.4 Hz); and δ 4.06 (d, *J*= 7.1; 14.2 Hz). The NMR complete data of **2** along with the effect on the tau protein aggregation will be presented and discussed.



1 **2**

References:

[1] Avila, J.; Santa-Maria, I.; Perez, M.; Hernandez F. and Moreno F. 2006. Tau phosphorylation, aggregation, and cell toxicity. J. Biomed. Biotechnol. 3: 74539-45.
[2] Farias, G.; Cornejo, A.; Jimenez, J.; Guzman L. and Maccioni R. B. 2011. Mechanisms of tau self-aggregation and neurotoxicity. Curr Alzheimer Res. 8 (6): 608-614.

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