In vitro antioxidant activity of ethanol extracts and organic partitions from *Piper patulum* and *Piper auritum* from Guatemala

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**Abstract**

**Introduction:** Ethanol extracts (EE) and partitions of *P. patulum* (Pp), endemic from Guatemala, and *P. auritum* (Pa), reported in most of the American continent, were studied for their in vitro antioxidant activity by three methods and compared with three standards.

**Experimental:** Milled dried leaves were percolated with ethanol, and concentrated by rotary evaporation; dried extracts were partitioned with hexane (HP), ethyl acetate (EAP) and ethanol (EP) and concentrated. Antioxidant activity was evaluated by total phenols (TP), DPPH and ABTS by TLC and spectrophotometry. Data was compared with vitamin E, TBHQ and quercetin, Trolox equivalent (TE) was calculated for ABTS.

**Results and discussion:** EE yields were 30.7% for Pp and 44.6% for Pa; partitions yields were 7.3, 7.5 and 60.6% and 5.0, 35.4 and 18.9% respectively. All extracts and partitions showed some antioxidant activity by TLC. PpEE showed good antioxidant activity by TP (107.06±1.04 μg gallic acid/mg) and DPPH (IC\textsubscript{50} 1.56±0.03 mg/ml) but moderate activity by ABTS (IC\textsubscript{50} 1.98±0.06 mg/ml, TE 2.19 μmol/mg), EAP and EP showed the best activity by DPPH (IC\textsubscript{50} 1.06±0.02, 1.50±0.04 mg/ml). PaEE and partitions showed little activity by TP (23.47±2.06 μg gallic acid/mg), DPPH (IC\textsubscript{50} 11.42±0.53 mg/ml) and ABTS (IC\textsubscript{50} 13.81±0.48 mg/ml), activity improved very little when partitions were tested. Controls values were: vitamin E (DPPH IC\textsubscript{50} 2.87±0.032 mg/ml; ABTS IC\textsubscript{50} 0.38±0.03 mg/ml), TBQH (DPPH IC\textsubscript{50} 1.16±0.01 mg/ml; ABTS IC\textsubscript{50} 0.199±0.001 mg/ml) and quercetin (DPPH IC\textsubscript{50} 0.64±0.001 mg/ml; ABTS IC\textsubscript{50} 0.1136±0.001 mg/ml).

**Conclusions:** Both EE gave good yield as whole extracts. Antioxidant activity of PpEE and partitions was demonstrated with significant difference from vitamin E and TBHQ (p<0.05), but it was less active than quercetin; EAP gave the highest activity. PaEE and partitions showed no antioxidant activity.

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