



## Study of the chemical composition of the essential oil from *Wedelia calycina*

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*Wedelia* genus comprises about sixty species distributed among tropical zones and warm regions, including countries such as India, China and Japan. Several of these species, have been used through the years by small communities for the treatment of different ailments and infectious diseases (1). Research on the chemical composition, antioxidant and anti-inflammatory activity of *Wedelia* species essential oils is relatively new, however, the chemical constituents of *Wedelia calycina* have not been described. *Wedelia calycina*, the main species of this study, was collected in two different municipalities in Santander, Barichara (COL559439) and Zapatoca (COL578353), and a third one in Palmira, Valle del Cauca (COL582605). Essential oils from Santander-collected plant material were obtained by microwave-assisted hydrodistillation (MWHD), while steam distillation was used for Valle del Cauca-collected plant. Essential oils analysis was carried out with an Agilent Technologies 6890N GC coupled to a 5975 Inert XL GC-MS system (EI, 70 eV), using two capillary columns: non-polar stationary phase [5%-phenyl-poly(methylsiloxane) (DB-5MS) 60m x 0.25mm, DI x 0.25  $\mu$ m, df]; and polar stationary phase [poly(ethyleneglycol) (DB-WAX) 60 m x 0.25 mm x 0.25  $\mu$ m]. Helium was used as carrier gas at 1 mL/min. Compound identification was performed by comparing linear retention indices and mass spectra with a built-in library data base. Oils from *Wedelia calycina* collected from Barichara (W1) and Zapatoca (W2), showed a very similar chemical composition, with limonene (28% and 31%, respectively) as the main metabolite; followed by  $\alpha$ -pinene (14% and 55%, respectively).  $\beta$ -pinene (25%) appeared in W1 and in a lesser extent in W2 (2%); *E*-caryophyllene, also appeared in W2 (7%), but in a lesser extent in W1 (4%); *Wedelia calycina* from Valle del Cauca (W3), showed a different chemical composition, with  $\alpha$ -pinene (20%) as the major metabolite, followed by  $\beta$ -pinene (14%),  $\alpha$ -phellandrene (15%) and germacrene D (15%). This oil did not contain any limonene in its chemical composition. The antioxidant activity (expressed as  $\mu$ mol Trolox /g substance) of the obtained essential oils were:  $600 \pm 60$  (W1),  $710 \pm 60$  (W2) and  $880 \pm 50$  (W3). The results obtained by the ORAC method showed that all essential oils studied presented antioxidant activities higher than those of BHT ( $459 \pm 9$ ) and  $\alpha$ -tocopherol ( $550 \pm 13$ ), typical standard antioxidants which were used as reference compounds.

1. Dai, J.; Zhu, L.; Yang, L.; Qiu, J. Experimental and Clinical Sciences (EXCLI) Journal, 2013, **12**, 479-490.

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