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abajando a ad en la salud, el amb  
alimentaria



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## Study of the antioxidant, antimicrobial and anti-inflammatory activities of two *Euphorbia* species

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In this research, a study of the antioxidant, antimicrobial and anti-inflammatory activities of two *Euphorbia* species (*Euphorbia hirta* and *Euphorbia jolkinii*) was developed. *Euphorbia* species belong to the *Euphorbiaceae* family, being commonly found in America and tropical Africa. *Euphorbia* species have been traditionally used in folk medicine to treat gonorrhoea, migraines, intestinal parasites, warts, and skin diseases [1]. Since there is more data available of *Euphorbia hirta*, the aim of this study was to provide a comparison between *E. hirta* and *E. jolkinii* regarding their antioxidant, antimicrobial and anti-inflammatory activities. For the cellular antioxidant activity, murine macrophage cells RAW 264.7 were used following the procedure described by Wolf & Lui (2007). *E. hirta* showed better inhibition percentage results than *E. jolkinii*, being 2,000 µg/mL, the maximum concentration tested for both samples. Extracts of both *Euphorbia* species were used to determine their antimicrobial activity. Gram-negative and Gram-positive food and clinical bacteria were tested for this assay. Moreover, Streptomycin, Methicillin and Ampicillin were used as controllers to compare both MIC and MBC results. For the food bacteria, *E. jolkinii* had better MIC results than *E. hirta* when Gram-negative bacteria were tested, although it was lower than controllers. MBC results for both *Euphorbia* species were similar and lower than the controllers. When Gram-positive clinical bacteria were tested, similar MIC results between both extracts were obtained. However, when *L. monocytogenes* and *S. aureus* were tested, *E. jolkinii* showed better MIC results. Antifungal activity was also assessed using ketoconazole as control and *Aspergillus brasiliensis* and *Aspergillus fumigatus* as fungi. Unsatisfactory results were obtained for both *Euphorbia* species for both fungi. AGS, CaCo2, MCF-7, NCI-H460, PLP2 and RAW 264.7 cell lines were used for the anti-inflammatory assay. Ellipticine was used as control in all the cell lines except in RAW 264.7, where dexamethasone was used. Results showed lower anti-inflammatory activity of the 2 extracts compared to the controllers in all cell lines, being *E. jolkinii* the one with lower GI<sub>50</sub>. Considering the obtained results, although *E. hirta* has been widely studied, *E. jolkinii* showed better antimicrobial and anti-inflammatory activities, being a suitable option for the pharmacological industry.

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