Olive leaf extracts as a source of antibacterial compounds against *Campylobacter* spp. strains isolated from the chicken food chain

Jose Manuel Silván, Rodrigo Casado, Marisol Villalva, Soledad Díaz, Alba Gutierrez-Docio, Esperanza Guerrero, Marin Prodanov, Adolfo J. Martínez-Rodriguez

Campylobacter is the leading cause of bacterial foodborne gastroenteritis worldwide. Infections by *Campylobacter* in humans are generally caused by consuming contaminated foods of animal origin, with poultry, especially chicken, being the main reservoir. The high prevalence of *Campylobacter* in chicken carcasses and the growing resistance to the most widely used antibiotics has driven EFSA to propose a regulation (2017/1495) containing new microbiological criteria to regulate the presence of *Campylobacter* in broiler carcasses. In this context, there has been an increase in the number of research aimed at the search for new tools to reduce *Campylobacter* incidence in chicken meat. The objective of the present work was to evaluate the antibacterial activity of two olive leaf extracts (A y B) against eleven *Campylobacter* spp. strains (*C. jejuni y C. coli*) isolated from chicken food chain. Results showed that all *Campylobacter* strains had resistance to at least one of the eight antibiotics evaluated, and 46% of them were antibiotic multi-resistant. HPLC analysis showed that hydroxytyrosol and oleuropein were the major phenolic compounds in extracts A and B, respectively. Extract A showed a significant antibacterial activity against all *Campylobacter* strains tested in the present work. The use of a pure standard of hydroxytyrosol confirmed the contribution of this compound to the antibacterial effect of extract A. These results suggest that olive leaves could be used as a source of bioactive compounds to obtain extracts with antibacterial activity against *Campylobacter* spp potentially applicable to reduce the presence of *Campylobacter* in chicken carcasses.

Keywords: *Campylobacter*, olive leaves, antibacterial activity, olive by-products