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Contribution of plant-derived phenolic compounds to combat *Candida* species biofilms <u>Natália Pereira Martins</u>^{1,2}, Lillian Barros², Sofia Costa-Oliveira³, Sónia Silva¹, Isabel C. F. R. Ferreira², Mariana Henriques¹

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Opportunistic fungal infections, namely involving Candida species, constitute a hot topic for scientific researchers. The present work aims to access antifungal potential of plant-derived phenolic extracts against planktonic cells and biofilms of Candida species. Eucalyptus globulus Labill. (blue gum), Glycyrrhiza glabra L. (licorice), Juglans regia L. (walnut) and Salvia officinalis L. (sage) evidenced to be the most effective Candida growth inhibitors, using disc diffusion assay. Minimal inhibitory (MIC) and minimal fungicidal (MFC) concentrations, and chemical composition of extracts by using HPLC-DAD-ESI/MS were also determined. Blue gum and walnut mainly exerted fungistatic potential, while sage exerted an interesting anti-Candida potential. However, the most prominent candidacidal potential was observed to licorice extract, being achieved the lowest MIC and MFC values. The candidacidal potential of these phenolic extracts was mainly attributed to their high abundance in flavonoids, mainly flavones: luteolin (sage) and apigenin derivatives (licorice), and flavanones: liquiritin derivatives (licorice). In order to deepen the knowledge on the most effective extract, its ability to inhibit biofilm formation was evaluated. Overall, a double concentration of MFC value was necessary to achieve similar results in biofilms. Flow cytometry assays were also carried out, and the obtained results revealed that primary lesion of cellular membrane appear to be most relevant mode of action. Thus, plant derived phenolic compounds evidence a promising potential to combat Candida species biofilms, both individually or combined with conventional therapy.