

HELLEBORUS ODORUS SUBSP. CYCLOPHYLLUS: AN UNEXPLOITED SOURCE OF ANTIOXIDANT, ANTIMICROBIAL AND CYTOTOXIC BIOACTIVITY

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Helleborus sp. are small, perennial herbs with a wide distribution in central and southern Europe and Asia. Extracts of these plants have been used in remedies since the ancient time exhibiting cathartic, anthelmintic but also adverse and poisonous potential. As such, they have been explored as alternative approaches to cancer treatment in rare cases. In this study, a detailed phytochemical characterisation of root extracts from *Helleborus odorus* subsp. *cyclophyllus* was performed in parallel with an *in vitro* assessment of their cytotoxicity and effect on cell phenotype. The GC/EI/MS metabolite profiling revealed the complexity of the extract, which exhibit a high relative content in fatty acids (17.98%), with the most abundant group being the unsaturated fatty acids, followed by saturated, and hydroxy-fatty acids. Bioassays showed the extract had antioxidant capabilities, while *in vitro* analysis demonstrated the extracted induced a pro-oxidant phenotype that reduced cell viability, inhibited growth in bacterial (*E. coli*) and mammalian (human aortic endothelial cells), and exacerbated pro-inflammatory indices. *Helleborus odorus* subsp. *cyclophyllus* contains bioactive molecules that elicit a number of cellular responses; the therapeutic potential of warrants further investigation.