**ANTIOXIDANT AND CHOLINESTERASE ACTIVITY OF *Cladonia gracilis* AND *Cladonia chlorophaea***

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The genus *Cladonia* Wigg. is widely distributed worldwide and for the sub-Antarctic and Antarctic islands presents a richness of approximately 30 species. This work aimed to evaluate the antioxidant and cholinesterase activity of *Cladonia gracilis* (L.) Willd. and *Cladonia chlorophaea* (Flörke ex Sommerf.) Sprengel species. The lichenic material was collected in Ardley Island, Maxwell Bay, King George Island in the Antarctic continent; after drying, ethanolic extracts and concentration in a rotary evaporator were performed. The resulting solid was evaluated for antioxidant capacity: ferric reducing/antioxidant power (FRAP), 2,2-diphenyl1-picrylhydrazyl radical (DPPH) retention, total phenols (FeT), total flavonoids (FlaT), and free radical trapping capacity (ORAC); the enzymatic inhibition activity of acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) was also evaluated. For FRAP assay *C. gracilis* and *C. chlorophaea* obtained similar values with 0.108±0.003 and 0.118±0.018, respectively; in DPPH *C. gracilis* and *C. chlorophaea* showed medium-high values with IC50 of 487.5 µg/mL and IC50 of 485.7 µg/mL, respectively; for FeT *C. gracilis* presented 0.318±0.022 mgEAG/g and *C. chlorophaea* 0.457±0.012 mgEAG/g; for FlaT the extract of *C. gracilis* presented 0.426±0.005 mgEQ/g and *C. chlorophaea* 0.205±0.006 mgEQ/g; in ORAC the extracts of *C. gracilis* and *C. chlorophaea* obtained close values with 223.088 µM/g and 271.483 µM/g, respectively. In enzyme inhibition assays, the extracts of the two species showed similar high inhibition of AChE (*C. gracilis*-IC50: 6.211±0.055 µg/mL and *C. chlorophae*- IC50: 4.204±0.061 µg/mL), compared to the differences in BuChE inhibition exhibited by *C. gracilis* extract (IC50: 9.105±0.065 µg/mL) with *C. chlorophae* (IC50: 5.938±0.068 µg/mL). These species present important biological activity and constitute natural materials with potential for medical research on neurodegenerative diseases such as Parkinson's and Alzheimer's. Funding: INACH RT-16-17.