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Effect of functional alcoholic beverage with microalgae *Chlorella vulgaris* on the cortical spreading depression propagation in young-adult rat

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Recent advances on microalgae biotechnology show that these organisms possess many bioactive compounds such as antioxidants. *Chlorella vulgaris*, green microalgae, aiming to study its capacity in producing interesting biomolecules e.g., oil for biofuel production and antioxidants, which can play a protective role against oxidants in many human tissues. In this study, we analyzed the effect of a *C. vulgaris* hydroalcoholic extract (a functional alcoholic beverage) on the brain by a cortical spreading depression (CSD) model in rats, which has been demonstrated previously that is affected by the presence of antioxidants. The *C. vulgaris* hydroalcoholic extract showed the percentage of inhibition of 77.2 % on DPPH scavenging radical assay.

This functional alcoholic beverage at a concentration of 12.5mg microalgae per mL, significantly inhibited the CSD velocity in the brain (2.89 mmmin⁻¹), when compared with cachaca treated and even below control (distilled water), 3.68 mmmin⁻¹ and 3.25 mmmin⁻¹ respectively. Animals treated with microalgae extract gained less weight than alcohol and water groups. These data suggest that this functional alcoholic beverage play a physiologic role particular on the brain as a protective for effects of ethanol. More studies are being carried out to evaluate the mechanisms of *C. vulgaris* biomolecules physiologically in animal models.

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