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Skin aging represents a huge concern in almost all cultures in the world. The excessive production of reactive oxygen species (ROS) combined with a normal intrinsic reduced antioxidant activity are factors that deeply contribute to the aging process (1). Thus, it is important to develop strategies to decrease ROS production in the skin or reduce the damage caused by them. The valorisation of natural cosmetic ingredients and formulations in cosmetic industry has been increasing over the past few years. Microalgae, abundant and easy to produce, are described to be an interesting source of bioactive peptides with antioxidant properties (2). Therefore, this work aims to produce water soluble extracts from five different microalgae species with focus on their antioxidant activity to meet the increasing demand for natural cosmetic ingredients.

METHODS: Extracts were prepared by enzymatic hydrolysis from the microalgae *Chlorella vulgaris*, *Nannochloropsis oceanica*, *Tetraselmis* sp., *Senedesmus obliquus* and *Phaeodactylum tricornutum*. First, microalgae were submitted to an incubation with cellulase - to weaken the cellular wall, followed by an incubation with a subtilisin protease to break proteins into smaller peptides. Prior to enzymatic hydrolysis, *Chlorella vulgaris* was first submitted to an acid hydrolysis with a weak acid. The protein content was determined by Kjeldahl method and the antioxidant activity was determined by ORAC and ABTS assays.

RESULTS: The extraction strategy resulted in high levels of hydrolysis with a yield of 44%, 30%, 16%, 52% and 36% of soluble protein for the microalgae *Chlorella*, *Nannochloropsis*, *Tetraselmis*, *Senedesmus* and *Phaeodactylum*, respectively. The results obtained for the ORAC were 400, 350, 150, 530 and 350 $\mu\text{M TE/g}$ of extract, and the ABTS activity was 80, 57, 63, 80 and 82 $\mu\text{M TE/g}$ of extract for *Chlorella*, *Nannochloropsis*, *Tetraselmis*, *Senedesmus* and *Phaeodactylum*, respectively.

CONCLUSION: The enzymatic hydrolysis allowed to produce extracts rich in proteins, with interesting antioxidant activity. The higher protein yield was obtained from the microalgae *Chlorella* (44%) and *Senedesmus* (52%), which coincides with the higher values of antioxidant activity. Therefore, the high protein content and the antioxidant activity of the enzymatic extracts from the microalgae *Chlorella vulgaris* and *Senedesmus obliquus* may be an interesting approach for the development of anti-aging ingredients.