PURIFICATION OF C-PHYCOCYANIN IN REGENERATED ULTRAFILTRATION MEMBRANE

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C-phycocyanin is a natural blue dye extracted from microalgae, used as a food colorant for
gums, soft drinks, candies and cosmetics. Furthermore, C-PC has been proven to have
antioxidant, anti-inflammatory and anticancer activities. To its application is necessary after its
extraction a purification step to separate it from microalgae cells and other contaminants. An
interesting purification process is ultrafiltration, which have simple operation and it is not
aggressive for the protein. This work aims to evaluate the membrane regeneration process
effect in ultrafiltration process to concentrate and obtain food grade C-PC. Ultrafiltration was
carried out in a laboratorial cell type dead-end with stirring and pressurized with nitrogen. Were
evaluated two membranes with different molecular weight cut-offs and construction material (50
kDa poliethersulfone and 100 kDa regenerated cellulose) with 25°C, pressure 1.5 kgf/cm² and
pH 7.5 with no use and after a regeneration cycle. For 50 kDa membrane, in the first use was
obtained a concentration increase of 4.14 times and a purification factor of 0.81 and when the
membrane was re-used the concentration increase was 3.36 times and purification factor was
0.73, values significantly lower when compared with no use membrane. For 100 kDa membrane
a concentration increase of 3.95 times and a purification factor of 0.77 was observed in the first
use and was unable to be reused due to the damage found on the membrane after the
regeneration process. The results obtained demonstrate that the regeneration process causes
losses in the membrane effectiveness. Acknowledgments: Capes, CNPq and FAPERGS.