HP-40: Large-scale chromatographic method to purify camel α-lactalbumin: A biotechnological approach in dietary therapy

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Subject description: An increased interest is in the camel milk as functional food to prevent or manage many human diseases. Its biofunctional properties are attributed mainly to its contents in bioactives proteins where α-Lactalbumin is the major whey soluble protein in Camelus dromedarius milk possessing antioxidant, antidiabetic, anti-obesity and anticancer effects. Therefore, there is a need to use the industrial applicability of biotechnology advances for the valorisation of this protein as natural pharmaceutical molecule.

Objectives: Large-scale method based on anion exchange chromatography (AIEX) was performed to purify α-Lactalbumin from camel whey.

Methods: The procedure was designed to selectively bind the other whey proteins onto the anion exchanger so that α-Lactalbumin could be collected in the run-through from the column. Purity of the eluted α-Lac was evaluated by SDS-PAGE.

Results and discussion: The results of the purification are presented by the chromatogram that showed one peak. The results of electrophorese analysis of the collected fraction showed that the peak corresponded to α-Lac that was fully eluted in the run-through with some residual amount of CWBP.

Conclusion: Thus, by AIEX chromatography a highly pure camel α-Lactalbumin was obtained providing its application in dietary therapy to prevent human diseases and achieve optimal health.

Keywords: α-Lactalbumin, AIEX chromatography, Purification, Biotechnology, Health.