

Development of a Simple and an Economical Method for Extraction of Edible Crude Fish Oil from *Catla catla*

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Fish oil is a rich source of nutrition and it provides benefits on human health. It is considered to be an important natural source of polyunsaturated fatty acids (PUFA). When considering of existing edible fish oil extraction methods, several drawbacks can be identified. The objective of this study was to develop a simple, rapid, cheap, nontoxic and scale up method to extract edible crude fish oil from *Catla catla*. In the present study, preliminary investigations were conducted to determine the suitable solvent for fish oil extraction. According to that ethanol, acetone, propanol and hexane were selected for sequential solvent extraction since they were recommended as the food grade solvents. The results of the sequential solvent extraction showed acetone and ethanol have an excellent capacity to extract fish oil. According to yield study, separated crude lipids, high yield was resulted from 50% acetone ($p < 0.05$). Therefore fish skin was treated with five volumes of 50% (v/v) acetone and homogenized. The homogenate samples were kept in refrigerator at 4°C for 24 hours. Then samples were filtered through filter paper and solvents were removed through dialysis, and separated lipids were freeze dried. In the present study, physicochemical properties were obtained as iodine value (131.13 ± 7.33), peroxide value (15.53 ± 0.38) and free fatty acid value (4.48 ± 0.22) in final extracted fish oil and it was in the acceptable range. According to the results, the extracted oil has good quality and high stability. Therefore, this method is considered as simple, rapid, cheap and non-toxic. This can also be incorporated to solvent extraction of fish oil from fish which can be scaled up.

Keywords: *Catla calla*, Ethanol, Acetone, Lipids, Nontoxic