

PROJECT SUMMARY

Ref No.: MRIC/IBG3-BG/P03	Title: From discards to bioenergy: Conversion of fish by-products into biodiesel
Local Institution: Mauritius Oceanography Institute	
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TECHNICAL ABSTRACT Capture fisheries and aquaculture represent a substantial segment of Mauritius' ocean economy. As reported by Statistics Mauritius, fish production in 2023 achieved a total output of 26,415 tonnes. The predominant portion of this harvest is allocated for human consumption and undergoes transformation into varied forms, including live, fresh or chilled, frozen, prepared, and preserved. Fish processing operations frequently result in a substantial quantity of by-products that are often unutilized and consequently become waste, such as heads, viscera, and skin. The literature indicates that these fishery wastes can constitute between 20% and 70% of the total fish weight and contain vital components including proteins, lipids, and minerals. The conversion of fish waste into biofuel, specifically biodiesel, presents a sustainable strategy that has the potential to address waste management issues while simultaneously meeting the nation's renewable energy requirements. Biodiesel is regarded as a cleaner alternative to fossil-based diesel due to its carbon neutrality and biodegradability. In comparison to petroleum diesel, biodiesel offers certain beneficial attributes, including a higher flash point and cetane number, enhanced lubricating properties, increased oxygen content, and minimal levels of sulfur and aromatic compounds. Chemically, biodiesel comprises monoalkyl esters of long-chain fatty acids, commonly known as fatty acid methyl esters. Thus, converting fish waste into biodiesel seeks to decrease landfill waste, mitigate environmental pollutants, and provide an environmentally sustainable substitute for conventional fossil fuels.	
Key Words: Biodiesel, Fish Waste, Innovation, Oil extraction	