



sustainability



Special Issue Reprint

Marine Biotechnology for Sustainability of Ecologically Significant Resources

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The sustainable production of marine ingredients is a critical focus for manufacturers, governments, authorities, and environmentally conscious consumers. This Special Issue showcases cutting-edge advancements in biotechnologies for the sustainable development of ecologically important marine resources. Of the 15 papers received, 12 highlight the production and application of n-3 long-chain (LC, $\geq C_{20}$) polyunsaturated fatty acids (n-3 LC-PUFAs) in aquaculture feeds and nutraceuticals. Key topics include the following:

Single-cell production of n-3 LC-PUFAs;

Recent breakthroughs in n-3 LC-PUFA oilseed production and regulatory insights;

Lipidomic analysis and sustainability of the New Zealand green shell mussel (GSM);

Insights into the utilization of myctophid fish for n-3 LC-PUFAs;

Omega-3-related studies in northern Australian beef cattle and squid viscera oil production;

Additional contributions explore sustainable practices in krill aquaculture and fishery management, marine-safe biosurfactants, and innovative techniques like compound-specific stable isotope analysis for determining the provenance of marine-derived products, such as squalene.

This Special Issue collectively underscores significant advancements in omega-3 research and broader marine biotechnologies, providing valuable insights for sustainable innovation.



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