Sargassum fluitans as Substrate and Nutrient Source de novo Culture Media to Growth Marine Microorganisms

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Despite the boom of metagenomics and metataxonomy, culture media are essential to identify organisms that have not been identified by these means; and to give insights of biological processes that cannot be explained without growing them (Rodrigues and de Carvalho, 2022). However, culture media options are limited and expensive, and there is great interest in the discovery of microorganisms for economic and clinical applications; especially marine microorganisms. Considering these, and since marine ecosystems are being affected by the accumulation sargassum worldwide, will it be possible to use the sargassum that washes up on the beaches, such as Sargassum fluitans, to create a culture medium for the growth of marine microorganisms? In this research S. fluitans was collected and used as a substrate, source of enrichment and as ingredient for an infusion. Luria Agar (LA) and Marine Broth (MB) were used as media controls; and MB was used as reference for the de novo media culture with sargassum. Media with sargassum was developed, and combinations of MB and LA with sargassum and infusion were also made. Results showed that sargassum functioned as a selective culture medium for marine microorganisms (bacteria, fungi and yeasts). In LA and MB media, infusion also increased the selectivity of the medium allowing the growth and inhibiting some species. Isolation of 78 bacteria and yeast colonies was done; differences were observed after Gram staining as well as variations in morphologies. In addition, growth inhibition of E. coli was observed in the presence of sargassum. Also, mycelial fungi mostly growth in media with sargassum and 10 isolates were obtained. Further experimentation is planned, to confirm the effectiveness of sargassum as a selective marine medium.

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