

Quantifying percent organic carbon of the thalli of various North American macroalgal species

Seaweeds are a key foundation species for rocky-intertidal zones, primarily through photosynthetic primary production. Fixed organic carbon, a product of photosynthesis, is used in a variety of ways by macroalgae, such as for thalli morphology, in addition to carbon fixation acting as a carbon sink. The objective of this study was to measure percent organic carbon of the thalli fixed by rocky-intertidal seaweeds. This was done by collecting three species from the Chlorophyta, Rhodophyta, and Phaeophyceae phyla respectively, at five individuals per species. Algae samples were dried and then ashed via muffle furnace to determine percent organic carbon through a formula developed by Howard et al. (2014). Percent organic carbon was found to statistically differ across all three phyla, with the Rhodophyta having the highest percent, Phaeophyceae with the lowest, and the Chlorophyta containing intermediate levels of percent organic carbon. These results provide additional ecological evidence of algal thallus functional-form, in addition to potentially supplying a new method to measure fixed carbon for purposes of biofuel production.

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