Will Climate change impacts aggravate Malnutrition in concealed ways?

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Being rich in variety of nutrients, seaweeds are used as food in many parts of the world. However, apart from the two species Kappaphycus alvarezii and Eucheuma denticulatum which have been cultivated for export, other species in East African countries have remained unutilized. Among other reasons this might be due to lack of information and awareness of nutritional value of this resource. According to literature the edible green seaweed Ulva fasciata which is abundant in Tanzania is, highly nutritious hence can help in the fight against severe malnutrition currently reported in the country. Seaweeds on the other hand, are reported to be affected by temperature. This study was therefore aimed at investigating the effect of rising temperature on the nutritive value of Ulva fasciata. Samples were collected at the Oyster Bay shoreline in Dar es Salaam and grown under controlled conditions in a growth chamber at the University of Dar es Salaam. Growth rate and selected nutrients (proteins, vitamin A, carbohydrates, iron, phosphorus, calcium and potassium were determined using standard methods. Data analysis was done using Paleontological statistics (PAST) version 1.27, 1999-2012 package. The results show that temperature elevation caused a decline in growth rate of U. fasciata. Furthermore, its protein content declined sharply from 19.8% dry weight to only 5.8% dry weight when temperature increased from the range of 28-29 °C to the range of 32-33 °C. With the exception of Phosphorus which increased progressively with temperatures rise, other nutrients including minerals showed a significant decrease when U. fasciata was grown in higher temperature ranges. The results suggest that the ongoing global warming will decrease nutritive value of Ulva fasciata.