Sustainable development concerns, indicators, sustainable development of coastal and marine resources

Duration Of Amino Acid In Concrete For Algae

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Coastal structures such as breakwaters and coastal dikes are built to prevent coastal erosion and storm surge damage. Such artificial structures fulfill the function for years, but recent years those structures are added new function to contribute to environmental conservation. Here the contribution is acceleration to form ecological chain from periphytic algae, which is the bottom of the marine food chain. A lot of approach is launched in various regions and achieves the certain effect. But few blocks contain pure material which has the physiological function like amino acids. Thus the blocks containing amino acid, Arginine was developed as Environmentally Vitalizing Concrete. It has been reported that the efficacy of acceleration to form marine periphytic algae on the concrete block containing Arginine in actual water area. This work aimed to investigate behaviors of amino acids in the concrete block in laboratory to ensure the long duration of the effect. These concrete blocks containing Arginine were put in the tank poured marine water by pump. Blocks were periodically salvaged. And time courses of distributions of Arginine in the blocks were analyzed. In parallel, elution of Arginine from the blocks was analyzed to examine slow release of Arginine for enough long life effect. And then, in order to obtain these data, analysis method of amino acids in concrete block was developed. Combination of further investigation of amino acid behavior in the block and actual tests was considered to provide the more efficient concrete block to environmental conservation. Keywords: algae, amino acid, environmentally vitalizing concrete