

Electrical currents stimulate coral branching and maintaining growth forms

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Field transplantation experiments using the Biorock technique under low voltage (3 V, and 6 A) direct current were carried out on two hermatypic reef-building corals, *Acropora tenuis*, and *Acropora cytherea* from April to November 2009 in Pramuka Island, Java, Indonesia. The first species has open three-dimensional branching, the second is a flat table coral. Growth and survival rates of corals transplanted on the Biorock artificial reef were compared with those of corals transplanted on uncharged control structures. After 7-months the electrically charged growth rates were 1.5 times higher than controls for *A. tenuis* and 2 times higher for *A. cytherea*. The number of branches of *A. tenuis*, were about 2 times higher on Biorock than on Control, *A. cytherea* showed little difference, perhaps due to its flat morphology. Higher survival rates on Biorock (100%) than on Control (73.3%, and 83.3%) were found for both species. The data presented refer to survival rate as a number of corals found in original position and alive on the respective structures, but some of them disappeared due to the wave action or biogenic disturbances such as fish

grazing. The greater increase in branching than in linear growth for *A. tenuis* suggests that cellular growth and division may be stimulated more than calcification.



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