Special Issue

Plants in Aquatic Ecosystems: Current Trends and Future Directions

Message from the Guest Editor

Hydrogen peroxide is an environmental stress indicator of submerged macrophytes in the lowland natural streams It is well known that environmental stresses intensify the generation of reactive oxygen species (ROS) in plant tissues, among which H2O2 is a major component. The H2O2 is relatively stable relative to remaining ROS and is widely studied due to its function as a signaling molecule in response to external stimuli. Thus, the possibility of using the concentration of H2O2 in plant tissues as an indicator of environmental stress has been investigated. Field observations conducted at several locations in natural streams in Japan, where *Egeria densa* was thickly colonized, revealed that H2O2 concentrations linearly increase with turbulence intensity. The total H2O2 concentration is approximately given by the sum of the H2O2 concentration generated by each stressor. A comparison of the fractions of H2O2 formation due to light stress and velocity stresses suggests that the oxidative stress from light stress and flow turbulence are the dominant stressors in natural streams.

Guest Editor

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Deadline for manuscript submissions

closed (31 December 2018)

Water

an Open Access Journal by MDPI

Impact Factor 3.0
CiteScore 6.0

mdpi.com/si/15298

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In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

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