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# Plants in Aquatic Ecosystems: Current Trends and Future Directions

Guest Editor:

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Deadline for manuscript submissions:
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## Message from the Guest Editor

Dear Colleagues,

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 $H_2O_2$ is a major component. The $H_2O_2$ 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 $H_2O_2$ 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 $H_2O_2$ concentrations linearly increase with turbulence intensity. The total $H_2O_2$ concentration is approximately given by the sum of the $H_2O_2$ concentration generated by each stressor. A comparison of the fractions of $H_2O_2$ 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.

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