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Effect of turgor pressure on the deflection in plants

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ABSTRACT

Herbaceous plants support the self-weight by using the geometric rigidity associated with turgor pressure of internal water. In this study, the effect of turgor pressure on the deflection was clarified. We modelled the herbaceous plants as a thin-walled cylindrical cantilever and derived the deflection formula in this model. As a result, we found that the mechanical and physical characteristics of herbaceous plants increase the deflection decreasing effect of turgor pressure.

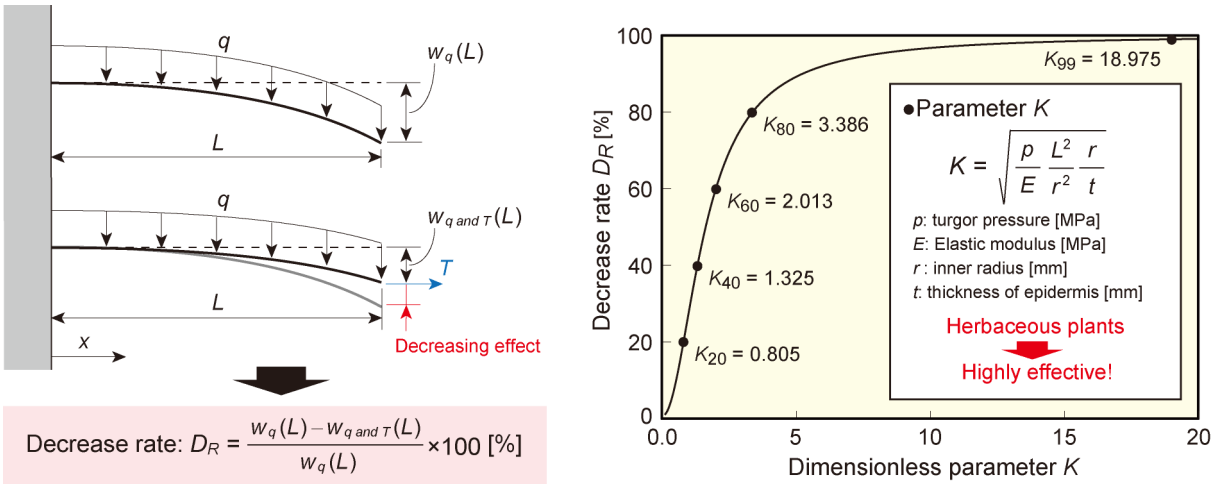

Fig. 1 Calculation model and the effect of turgor pressure on the deflection

REFERENCES

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