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PRIMING AS A TOOL FOR MODULATION OF BIOMASS QUANTITY AND QUALITY

RESEARCH/TECHNOLOGY INTRODUCTION

The subject of the project is the application of selected stress factors ("priming") to plants in order to increase plant resistance while optimizing the amount of lignin in biomass for its subsequent use.

A controlled dose of stress in the early stage of plant development leads to a physiological response which, under appropriately selected conditions, can lead to improved individual resistance and also to a change in the composition of the plant cell wall. In plants grown for biomass, the potential use of biomass depends on its quality, especially on the amount of lignin and cellulose

in the cell walls of plant cells. A higher lignin content is suitable for processing into heating pellets, for example, a lower lignin content (or a higher cellulose content) is more suitable for fermentation, for example for the production of bioethanol.

By applying different types of priming to the model bioenergetic crop *Miscanthus x giganteus*, we achieved biomass where the content of lignin and cellulose differs by several percent compared to control, untreated plants.

POTENTIAL USERS

Agricultural companies, companies using biomass for various purposes.

ADVANCEMENT OF TECHNOLOGY AND MARKET APPLICATION

Priming is a very elegant, inexpensive method affecting the basic physiological processes of the plant. These are usually easy-to-apply doses of stress that involve the action of physical, chemical or biological factors. With a suitably selected type and dose of stressor for a given plant species, it can often be applied on a field scale after basic evaluation.

DOPLŇUJÍCÍ INFORMACE

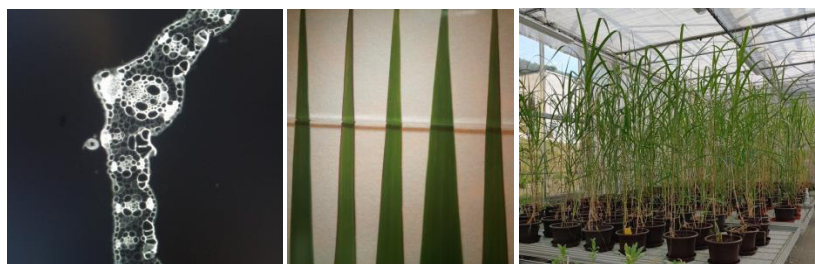


Figure: Qualitative analysis of the leaf, "pretreated" plants of *Miscanthus x giganteus* (KBI research greenhouse in the Za Válcovnou complex). Own processing.