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High sensitivity of *Spirodela oligorrhiza* and onion to paclobutrazol

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Acsenic *Spirodela oligorrhiza* is much sensitive to paclobutrazol (PB). The strong growth retardation was noted at 10 μg l^{-1} of PB. Morphology of the plants was affected. PB stimulated or inhibited activity of acid phosphatase and RNase. Alkaline phosphatase was not induced. PB at 100 μg l^{-1} stimulated growth of leaves and bulbs of *Allium cepa* in a liquid medium. Higher concentrations of PB were inhibitory. Growth stimulation by PB was dependent on addition of benzyladenin and NAA. PB at low concentrations enhanced, and at higher ones decreased, the chlorophyll content. GA_3 counteracted the growth retarding effects of PB.

07 18

DNA methylation studies on *Melandrium album*: X chromosome replication and 5-azacytidine induced sex reversal

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Two different phenomena demonstrating an epigenetic role of DNA methylation in a dioecious model plant *Melandrium album* are presented. In female cells we have observed a conspicuous difference in the time of replication between the two X chromosomes, one being replicated in the early S phase. These data along with our previous work showing a different degree of X chromosome methylation support the hypothesis that one of the two X chromosomes in *M. album* homogametic female cells could be inactivated and hypermethylated as described in mammals. In order to study a role of DNA methylation in sex expression, a hypomethylating drug 5-azacytidine was applied to induce a sex reversal of males to androhermaphrodites. This result shows that the Y chromosome provided suppression of female sex organs in the XY male genotype is accompanied by DNA hypermethylation and can be reverted with hypomethylating drugs.

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Relationship of endogenous ethylene production to photosynthesis rate of winter wheat (*Triticum aestivum* L.) ear

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Photosynthesis rate, stomatal resistance, internal CO_2 level and endogenous ethylene level in ears of winter wheat (*Triticum aestivum* L.) were investigated. Negative correlation between ear photosynthesis and stomatal resistance was accompanied by increasing ethylene production and decreasing ear photosynthesis rate. Application of silver thiosulphate as an inhibitor of ethylene activity, sprayed onto ears, resulted in ethylene production decrease, stomatal resistance increase and slightly increased ear photosynthesis rate. Correlation analysis of investigated parameters indicated that relationship between endogenous ethylene production and ear photosynthesis rate could be realized *via* modification of stomatal resistance and internal CO_2 level. Other possible ways of the influence are discussed.