

EFFECT OF SHOOT- AND ROOT-LOW TEMPERATURE STRESS ON  
FREEZING RESISTANCE OF WINTER RAPE PLANTS

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The influence of low temperature stress was investigated on winter rape plants (*Brassica napus* var. *oleifera*, cv. Górczański and cv. Jantar). Plants were allowed to grow at 20/20°C, 20/5°C, 5/20°C or 5/5°C shoot/root temperature. Estimation of frost resistance was performed on the leaf disks with the conductometric method.

Chilling of the roots (20/5°C) brought about a similar increase of freezing resistance as chilling of the shoot (5/20°C). When shoots and roots were chilled simultaneously (5/5°C) frost resistance of the leaves was higher than that brought about by chilling of the shoot or the roots separately (5/20°C or 20/5°C treatments, respectively). Such a behaviour of plants corresponded well with their growth responses, expressed as dry matter production.

It is proposed that a signal is released by the stressed root system. This signal may play a role in the induction of changes involved in the leaf responses to low temperature stress.