Changes in energy charges during cold acclimation of winter rape plants

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Our previous studies showed that the levels of ATP and energy charge increased markedly during the first few days of cold hardening of winter rape plants (Brassica napus L., var. oleifera, cv, Górczański), both in light and in darkness Present experiments indicated that the few-day cold treatment caused also an increase in the NAD^+, $NADP^+$, and NADPH levels but had no effect on the NADH level. Changes in the respective nucleotide levels were reflected by changes in anabolic and catabolic reduction charges. The former increased by 70% whereas the latter decreased by 44%.

The above data point to the regulatory role of the energy charges in the plant adaptation to cold as well as they allow to propose the possible mechanisms involved in the adjustment of plant metabolism to low temperature.