

The brewing properties formation of barley grain depending on nutrition regime and phytohormones application when growth on sod-podzolic soil

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Abstract

In the field experiments with brewing barley, carried out on sod-podzolic medium-loamy soil, it has been found out, that the raising doses of nitrogen application increased grain productivity of barley plants (by 18-33%), grains protein content, α -amylases, catalases and peroxidases activity, but decreased grain unit and β -amylases activity. In water deficit weather conditions (Hydrothermal coefficient of moisture on the G.T Selyaninov = 1-1.3) the raising doses of phosphorus and potassium (P_{120} , K_{120}) increased the grain productivity of barley plants (by 10-28%), the mass of 1000 grains, their germination ability and α -amylases activity, but decreased β -amylases, catalases, peroxidases activity and grains protein content making it not more than normative level (12%). In 7-days germinated grains of barley harvested in the variants with raising doses of nitrogen it has been revealed increasing of α -amylases, proteases, catalases, peroxidases activity, but decreasing of β -amylases activity. In the variants with higher doses of phosphorus and potassium barley grains were formed, which observed on the 7th day of sprouting increased α -amylases and peroxidases activity and reduced activity of β -amylases. It has been revealed, that phytohormones novosil and epin application enhanced grain productivity of barley plants (by 6-14%) and α -amylases activity in grains, but decreased β -amylases activity. In water deficit weather conditions novosil phytohormone reduced grains protein content to normative level. In the variants with epin phytohormones application barley grains were formed in which germination increased amylase and peroxidase activity, improving their ability to malting.

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