

Review article

Review of the main diseases of *Centaurea cyanus* and *Echinacea purpurea* when grown in the organic farming system

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ABSTRACT

*The aim of the study was to identify patterns and intensity of crop infection and to assess the influence of climatic and soil conditions under organic farming on the resistance of cornflower (*Centaurea cyanus*) and purple coneflower (*Echinacea purpurea*) to pathogens in leading producer countries. The study utilized comparative and structural analysis to evaluate pathogens, their optimal spread conditions, and organic management strategies. Agro-climatic factors significantly dictate the disease spectrum and severity. Powdery mildew and rust dominate moderately humid European regions, causing up to 20% yield reductions and decreasing essential oil and flavonoid contents. Root and white rots cause 20-25% yield losses under excessive moisture in North America. In Ukraine, *Alternaria* and *Fusarium* reduce yields by 15-25% and lower biologically active substances. In Southern Europe, leaf spots and bacterial blights reduce yields by 10-18%. Furthermore, nitrogen and potassium deficiencies intensify disease severity and diminish the pharmacological value of both crops. Optimised nutrient management, crop rotation, and mulching are essential to mitigate region-specific phytosanitary risks and stabilise organic medicinal crop productivity.*

Keywords: Medicinal herbs, organic farming, plant diseases, soil fertility, yield loss.