

A method for differential diagnostics of the effect of xenobiotics on the resistance of plants includes growing the plants in the presence and absence of the effect of a stress factor, preparing a plant preparation for analysis and determining the resistance of the plants according to the content of antioxidants. The alcohol extraction of the roots of tested and control plants is carried out, the content of alcohol-soluble antioxidants of the phenolic type is determined, the periodical change in the accumulation of which, depending on a rate of a xenobiotic, is determined according to the expression

$$y = f_0 + A_c \cdot \sin\left(\varphi_0 + \frac{2\pi \cdot C}{K_0 + K \cdot C}\right),$$

wherein  $y$  is the content of the antioxidants of the phenolic type, mmol/g of dry matter or % to the control;

$f_0$  - the base function;

$A_c$  - the highest discrepancy of the determined value of the content of the antioxidants of the phenolic type from that determined according to the base function  $f_0$ , mmol/g of dry matter or % to the control;

$\varphi_0$  - initial stage of oscillations;

$C$  – concentration of the xenobiotic in the germination medium, mmol/g or mg/l;

$K_0, K$  - coefficients.

In case of the same directionality of the base function  $f_0$   $K$  values for different xenobiotics are compared and, if this index lowers, an enhancement of the toxic effect of the xenobiotic on plants is determined.