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Complex preparation with antioxidant properties

PATENT APPLICATION NUMBER: No. 4647

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APPLICATION FIELDS: Agriculture and Food Industry

AIM: The invention relates to chemical compounds with biologically active properties, and can be used in agriculture for reducing the negative impact of oxidative stress caused by reactive oxygen species, for antioxidant protection and diminishing the oxidative destruction of cellular components.

SOLUTION: The complex preparation, according to the invention, comprises thiourea, $Mg(NO_3)_2 \cdot 6H_2O$, $Ca(NO_3)_2 \cdot 4H_2O$, potassium salicylate, $[Co(DmgH)_2(SeUree)_2]BF_4 \cdot 2H_2O$, $[Fe_3O(CH_3COO)_6(H_2O)_3]NO_3 \cdot 3H_2O$, $Mn(CH_3COO)_2 \cdot 4H_2O$, $[Co(DmgH)_2(Nia)_2]BF_4 \cdot 2H_2O$, $Zn(NO_3)_2 \cdot 6H_2O$, $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$, $(HOC_6H_4COO)_2Cu \cdot 4H_2O$.

Table The effect of antioxidants on the antioxidant protective capacity of plants of *Glycine max* (L.) Merr., variety Enigma

	Control		Thiourea		Polyel	
	M ± m	M ± m	Δ, %M	M ± m	Δ, %M	
MDA, μM/g fr. m.	25,77 ± 0,7	18,72 ± 0,5	-27,36	17,27 ± 0,5	-33,0	
SOD, conv. un. /g fr. m.	116,33 ± 3,5	137,63 ± 4,1	18,31	166,05 ± 5,0	42,69	
CAT, mM/g fr. m.	3,62 ± 0,1	3,99 ± 0,1	10,22	4,74 ± 0,14	30,94	
APX, mM/g fr. m.	3,11 ± 0,09	4,19 ± 0,1	34,73	4,78 ± 0,5	53,70	
GIPX, mM/g fr. m.	52,58 ± 1,6	60,58 ± 1,8	15,21	68,01 ± 1,8	29,34	
GwPX, mM/g fr. m.	31,04 ± 0,9	50,52 ± 1,5	62,75	56,4 ± 1,7	81,81	
GIR, mM/g fr. m.	104,89 ± 3,1	124,01 ± 3,7	18,23	131,24 ± 3,9	25,12	



Photo. The effect of exogenous administration of compounds with cytokinin action on the growth of soybean plants, cultivar Enigma at the "first trifoliolate leaf" stage.

ADVANTAGES: The result of the invention consists in reducing the content of malonic di-aldehyde – the final product of lipid peroxidation by the reactive species of oxygen, and in enhancing the activity of the antioxidant protection system enzymes.

IMPLEMENTATION STAGE: Antioxidant properties of the Polyel preparation were tested in laboratory, vegetation and field experiments.

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