

NATURAL INOCULANT

(root forming agent)

Institute of Microbiology and Virology named after D.K. Zabolotny, National Academy of Sciences, has experimentally proved that BIO-GEL organic product contains a large number of bacterial microbiota, which makes it possible to classify it as a **natural inoculant**.

Products labeled 0, 1, 1+, 2, 2+, 3, 3+ were given for the study.

Microbiological indicators were determined by plating ten-fold dilutions of the product on Zvyagintsev, Chapek, Ashby medium. The product effect on the *Smuglyanka* wheat variety growth was studied in vitro on Muracige-Skuga medium with no saccharose and no hormones. All experiment variants were performed simultaneously.

Product microbiological analysis

Product sample	Total number of microorganisms (Zvyagintsev medium)	Nitrogen-fixing microorganisms (Ashby medium)	Micromycetes (Chapec medium)
0	$8 \cdot 10^9$ (various)	$10 \cdot 10^7$	no micromycetes
1	$50 \cdot 10^9$ (mainly bacilli)	$45 \cdot 10^7$	no micromycetes
1+	$5 \cdot 10^9$ (mainly grey semitransparent)	$40 \cdot 10^7$	$5 \cdot 10^4$
2	$18 \cdot 10^9$ (mainly grey semitransparent)	$7 \cdot 10^7$	10^3
2+	$52 \cdot 10^9$ (mainly grey semitransparent)	$60 \cdot 10^7$	no micromycetes
3	$10 \cdot 10^9$ (mainly bacilli)	$105 \cdot 10^7$	no micromycetes
3+	$1 \cdot 10^9$ (mainly bacilli)	$37 \cdot 10^7$	no micromycetes

Effect on wheat growth

Product sample	Dilution	Sterilization	Shoot length, cm	Root length, cm	Root weight, g
control			2.67	2.25	0.016
0	1:100	non-sterilized	5.75	3.91	0.037
	1:100	sterilized	3.83	2.91	0.026
	1:1000	non-sterilized	3.67	2.58	0.027
	1:1000	sterilized	3.5	2.75	0.026
1	1:100	non-sterilized	6.25	4.25	0.051
	1:100	sterilized	5.5	3.91	0.033
	1:1000	non-sterilized	1.67	1	0.007
	1:1000	sterilized	3.92	3.0	0.024
1+	1:100	non-sterilized	3.0	2.92	0.031
	1:100	sterilized	2.08	1.91	0.025

	1:1000	non-sterilized	4.25	3.41	0.029
	1:1000	sterilized	1.85	1.83	0.017
2	1:100	non-sterilized	5.75	3.58	0.037
	1:100	sterilized	2.08	2.25	0.019
	1:1000	non-sterilized	4.91	4.33	0.037
	1:1000	sterilized	4.67	4.0	0.029
2+	1:100	non-sterilized	5.67	2.83	0.039
	1:100	sterilized	5.33	3.50	0.031
	1:1000	non-sterilized	6.83	4.75	0.03
	1:1000	sterilized	4.16	2.91	0.027
3	1:100	non-sterilized	5.25	2.83	0.039
	1:100	sterilized	3.16	2.0	0.021
	1:1000	non-sterilized	4.83	3.53	0.028
	1:1000	sterilized	5.58	3.41	0.026
3+	1:100	non-sterilized	6.83	4.25	0.051
	1:100	sterilized	7.58	5.25	0.045
	1:1000	non-sterilized	3.17	2.50	0.028
	1:1000	sterilized	6.75	5.33	0.042

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