

# Seasonal variation of the effect of extremely diluted agitated gibberellic acid ( $10^{-30}$ ) on wheat seedling development

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## ABSTRACT

*Objective:* Performing a study on a wheat growth bio assay with a homeopathic dilution of gibberellic acid at different seasons of the year.

*Methods:* Grains of winter wheat (*Triticum aestivum*, Capo variety) were observed under the influence of extremely diluted gibberellic acid ( $10^{-30}$ , 30x). Analogously prepared water was used for control. 15 experiments were performed, 9 in autumn season (5 researchers, 4,440 grains per group), and 6 in winter / spring (4 researchers, with 3,140 grains per group).

*Results:* All 9 autumn experiments showed *less* stalk growth in the verum group ( $p > 0.01$  in 4 cases,  $p > 0.05$  in 3, trend in 2 cases). Mean stalk lengths (mm) were  $46.97 \pm 20.50$  for verum and  $50.66 \pm 19.77$  for control at grain level ( $N = 4,440$  per group) and  $\pm 3.87$  and  $\pm 3.38$  respectively at dish level (217 cohorts of 20 or 25 grains per treatment group). Verum stalk length (92.72%) was 7.28% *smaller* than control stalk length (100%). In contrast, no reliable effect was found in experiments performed in winter / spring (less stalk growth in 1 case, no difference in 1, more growth in 3 cases). Overall verum stalk length (103.64%) was 3.64% slightly *greater* than control stalk length (100%). Data were found to be homogeneous within the control groups as well as within the verum groups.

*Conclusion:* Results suggest that especially in the experiments performed in autumn, there was an influence of gibberellic acid 30x on wheat seedling development. The effect size is small when calculation is done on the basis of grains ( $d = 0.18$ ) but high when done on the basis of dishes ( $d = 1.02$ ). In contrast, no reliable effect was found in experiments performed in winter / spring. Further experiments should thus be performed in the autumn season.



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