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CONTENTS OF CYTOKININ-TYPE SUBSTANCES IN SEA WATER AND THE INFLUENCE OF THESE SUBSTANCES ON THE GROWTH PROCESSES OF SOME BALTIC ALGAE*

ZAWARTOŚĆ SUBSTANCJI TYPU CYTOKININ W WODZIE MORSKIEJ I WPŁYW TYCH ZWIĄZKÓW NA PROCESY WZROSTOWE WYBRANYCH GLONÓW BAŁTYCKICH**

Summary

Streszczenie

The presence of cytokinin-type substances was demonstrated in sea water. This activity was usually higher in the near-bottom waters than in the surface layer.

It was assumed that the higher cytokinin activity in near-bottom waters could be attributed to the presence of substantial associations of Fucus planta in this zone. This supposition was confirmed in some additional experiments. It was found that cytokinin activity, examined in the same volume of medium, increased as regard to the higher biomass of Fucus thallus. This finding suggested the possibility of exudation of this substances to the environment. In consequence a secondary influence of this compounds on plant growth can be not excluded.

To prove this question the effect of different authentic cytokinins on baltic phytoplankton was investigated. The cytokinins used were: kinetin (6-furfurylaminopurine), 6-benzylaminopurine (BAP), 6-/3-methyl-2-butenylamino/purine (2iP) and trans-6-/4-hydroxy-3-methylbut-2-enylamino/purine (zeatin).

The obtained data showed that the applied substances significantly influence the content of chlorophylls as well as of dry weight of phytoplanton. Especially

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active among the applied cytokinins was 2iP. The responses of phytoplankton to this compound were demonstrated by a significant stimulation of both chlorophyll "a" and carotenoids contents. The observed promotion effect of 2iP action was strongly notable in the case of chlorophyll "b". The reaction of phytoplankton to the other cytokinins used were markedly lower.

It was concluded that the active substances of the cytokinin-type present in sea water can modify the growth processes of some algae and thus play an important role as an ecological factor in the aquatic medium.