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Investigation of Nutrient Limitation of Phytoplankton
Production in Northern Adriatic

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By enrichment experiments the limitation of the phytoplankton production was investigated at three stations in the Northern Adriatic. One of these station (No. 10) is under direct influence of Po River, the second (No. 20) represents the waters of middle Adriatic, while the third one (No. 6) was under the influence of both Po river and middle Adriatic. In sea-water samples from stations No. 20 and No. 6 the limitation of photosynthetic activity of phytoplankton from surface layers was actual in spring during the phytoplankton bloom, and in period of vertical stratification of the water column, because of the prevention of the supply of nutrients from bottom layer. From the results of the experiments it is evident that in general the primary limiting nutrient is phosphate and after it nitrate. The fortification of the samples with the complete mixture of nutrients (phosphate, nitrate, silicate and trace metals) was however the most efficient in stimulating photosynthetic activity of phytoplankton. At station No. 10 experiments showed drastic limitation throughout the period of investigation. However, at this station nutrients are continuously supplied by Po river and at the field phytoplankton probably does not suffer from nutrient limitation; on the other hand

in laboratory the nutrients in the sea water samples are quickly taken up by fairly high phytoplankton biomass occurring in the neighbourhood of Po river, so that their limitation in such kind of experiment is only apparent.

DISCUSSION

Questions and comments:

1. What means, after you, Chlorophyll a? I think by fluorescence we can't distinguish between Chlorophyll a and Chlorophyllide a, peophytine a etc. (A. BALLESTER, Spain)
 - Chlorophyll a was determined fluorometrically by Holm-Hansen et al. method, and by this method it is impossible to distinguish Chlorophyll a from other fluorescent substances with same spectral range of fluorescence.

2. Do you add EDTA in the enrichment experiments?
(A. BALLESTER, Spain)
 - Yes.

3. I would like to clarify the procedure of the experimental work. (L. IGNATIADES, Greece).
 - The two liter aliquots of sea water samples were enriched with nutrients in different combinations, incubated 48 hours in continuous light (6000 lux) and then photosynthetic activity (Steemann-Nielsen's radiocarbon method, 1952) and Chlorophyll a (Holm-Hansen et al. 1965) were determined.