B131 Complementary chromatic adaptation in the cyanobacterium *Chroococcus minutus*

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Besides of the photosynthetic pigments chlorophyll-a and carotenoids, cyanobacteria contain phycobiliproteins (PBPs) as accessory pigments. PBPs almost close the light-energy gap left by chlorophyll-a and the carotenoids, allowing the algae to use solar radiation more efficiently. The prosthetic groups (phycoerythrobilins or phycocyanobilins) determine the colour and absorption spectra of the different PBPs (1). Only some of the cyanobacteria, containing blue phycocyanin (PC) and red phycoerythrin (PE), can specifically modulate their content of PBPs to a change of the spectral quality of the light. These species have been classified in two groups: Species of group I can only alter their PE content, whereas species of group II can adjust both their PC and PE content (green light promoting the synthesis of PE and red light that of PC) (2).
In our studies we found *Chroococcus minutus* (Kützing) Nägeli, an unicellular cyanobacterium, being able to modulate its PBP content in dependence of spectral light quality as follows:
When cultivated under red light, *C. minutus* produced more PC relative to PE. When *C. minutus* was cultivated under green light, no significant difference in the PC/PE ratio to a white light culture became obvious. Therefore we propose to classify *C. minutus* to the group of cyanobacteria, which can only alter their PE content.

References: 1. Rowan, S.K. (1989) Photosynthetic pigments of algae. Cambridge University Press. **2.** Tandeau de Marsac, N. (1991) Chromatic Adaptation by Cyanobacteria. Cell Culture and Somatic Cell Genetics of Plants, Molecular Biology of Plastids and Mitochondria, 7 b. Academic Press, Inc. San Diego. 417-446.

B132 An immersion bioautography assay for compounds possessing antimicrobial activity of marine lichen

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In the search for bioactive principles from Marine natural products, the biological activites of lichens found in mangroves is still unexplored aspect of pharmacognosy. We examined *Roccella montagnei* a mangrove lichen for antimicrobial substances by bioautographic assay using *Bacillus subtilis* as the indicator. The biomedical potentials of lichens have been known to man since immemorial time. Growth inhibition using hole plate and agar disc diffusion assays were determined against three gram positive and seven gram negative bacteria and two fungi. In successive extracts, the chloroform and ethylacetate of *R. montagnei* showed maximum activity against *Serratia* sp. Chloroform extracts showed high inhibition against *Proteus vulgaris*. Methanol, ethylacetate, butanol, chloroform and ethanol extracts of *R. montagnei* inhibit all the tested bacteria. However, butanol extracts showed high inhibition against *Mycobacterium smegmatis* followed by acetone extracts showed against *Vibrio cholera* in the disc method. But in the hole plate method butanol extracts showed high inhibition against *Pseudomonas aerugi - nosa* and the lipid extracts showed complete inhibition against *Aspergillus niger*. Among the ten bacteria and two fungi tested , the column chromatographic fractions 2nd, 6th, 8th and 9th showed high inhibition against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Bacillus subtilis*. Due to the antibacterial activity found in the marine lichen we have extended the study in bioautography for detection of compounds. The TLC bioautogram of *R. montagnei*, the 8th and 9th fraction showed antibacterial compound with high inhibition and also showed bactericidal activity. These compounds were analysed by gas chromatography.

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