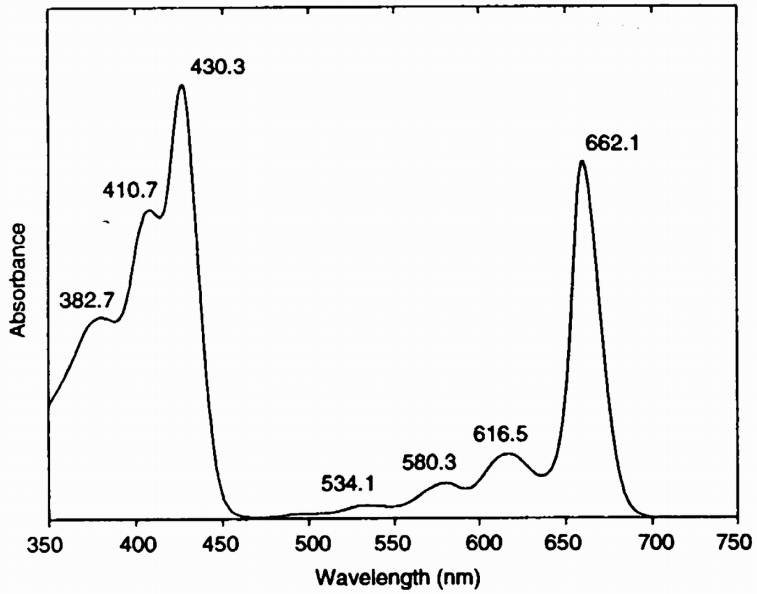
# Chlorophyll *a*

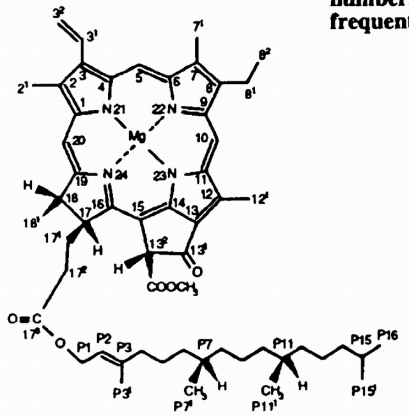
HPLC peak 41

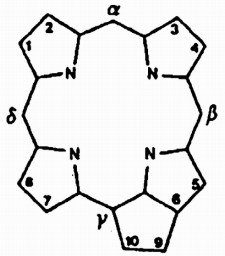
## Standard spectrum in reference solvent: acetone (100%)



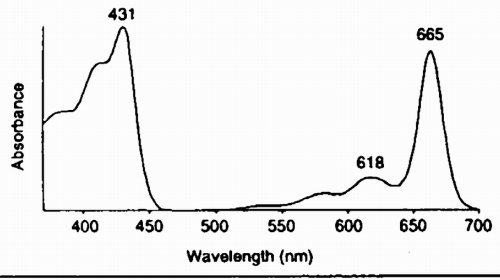

## Molecular structure

**Structure of chlorophyll *a*; left, the IUPAC numbering system; right, the older but still frequently used Fischer numbering system**



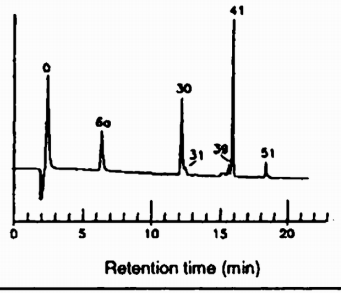



## Diode array spectrum in SCOR eluant




## HPLC: Chl *a*, peak 41

*Chroomonas salina*




# Chlorophyll *a*

| Property | | Data |
|---|---|---|
| **Name:** | (Trivial) | **Chlorophyll *a*** |
| | (IUPAC) | Trivial name sufficient, see Hynninen (1991) |
| **SCOR abbreviation:** | | Chl *a* |
| **Occurrence:** | | All photosynthetic algae and higher plants |
| **Colour:** | | Blue-green |
| **Molecular formula:** | | $C_{55}H_{72}N_4O_5Mg$ |
| **Molecular weight:** | | 893.50 |
| **Specific extinction coefficient:** $\alpha$ (l $g^{-1}$ $cm^{-1}$) | | 88.15 (at 662.7 nm in 100% acetone)<br>87.67 (at 664.3 nm in 90% acetone)<br>Jeffrey & Humphrey (1975) |
| **Molar extinction coefficient:** $\varepsilon$ (l $mol^{-1}$ $cm^{-1}$) | | $78.75 \times 10^3$ (at 662.7 nm in 100% acetone)<br>Calculated from $\alpha$ |

**UV-vis spectra:**

| Solvent | Absorbance maxima (nm) | | | | | | Band ratio* | Reference |
|---|---|---|---|---|---|---|---|---|
| 100% Acetone | 410.7 | 430.3 | 534.1 | 580.3 | 616.5 | 662.1 | 1.23 | SCOR WG 78 data |
| Diethyl ether | 410 | 430.0 | 535.5 | 578.0 | 615.0 | 662.0 | 1.30 | Smith & Benitez (1955) |
| Diethyl ether | 409 | 428 | 530 | 575 | 614 | 660.0 | 1.28 | Hynninen & Lötjönen (1983) |
| Methanol | 417.6 | 431.8 | | | 618.2 | 665.2 | 0.96 | Lichtenthaler (1987) |
| HPLC Eluant | | 431 | | | 618 | 665 | 1.17 | SCOR WG 78: Wright *et al.* (1991) method |

*Soret (blue maximum): red ratio

**Fluorescence spectra:**

| Solvent | Excitation (nm) | Emission (nm) | Reference |
|---|---|---|---|
| Diethyl ether | 428 | 666 | Boardman & Thorne (1971) |
| Diethyl ether | 427 | 666 | SCOR WG 78 data |
| Acetone | 430 | 668, 713 | Jeffrey (1972) |

| | |
|---|---|
| **Alteration products:** | Chlorophyllide *a*, pheophytin *a*, pheophorbide *a*, epimers, allomers, pyro-derivatives |
| **Culture from which SCOR data were obtained:** | *Chroomonas salina* (cryptomonad) |
| **Additional reference(s):** | Scheer (1991) |