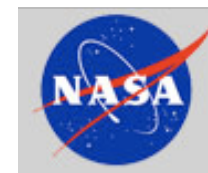




Life in Extreme Conditions

**Mediterranean Institute for Life Sciences
Split, Croatia**

August 3rd – August 9th 2008





Projects @ MedILS

- Genetics of Death in Yeast – Francois Taddei and Ivan Svetec
- Life in Extreme Conditions – Miroslav Radman and Ksenija Zahradka
- Computational Biophysics Group – Bojan Žagrović
- Ubiquitin and cancer – Ivan Đikić and Janoš Terzić
- Mechanisms of neurodegeneration – Dimitri Krainc and Janoš Terzić
- Biophysics and Bioinformatics of Bacterial Cells – Ivo Sbalzarini and Anita Kriško

Extreme conditions

Which conditions are **extreme**?

- those that deviate from conditions optimal for the majority of organisms

Definition of **habitat**:

- 1) Temperature : -20°C to 120°C
- 2) Salt : up to 5 M NaCl
- 3) Water activity : 0.99 to 0.6
- 4) pH : 0 -12
- 5) Pressure : up to 1000 atm

Adaptation

At different levels:

- Genome
- Proteome – physicochemical properties of proteins
- Lipidome (membranes) – lipid composition
- Transcriptome (gene expression), metabolism
- Cell and body shape – increasing surface-to-volume ratio

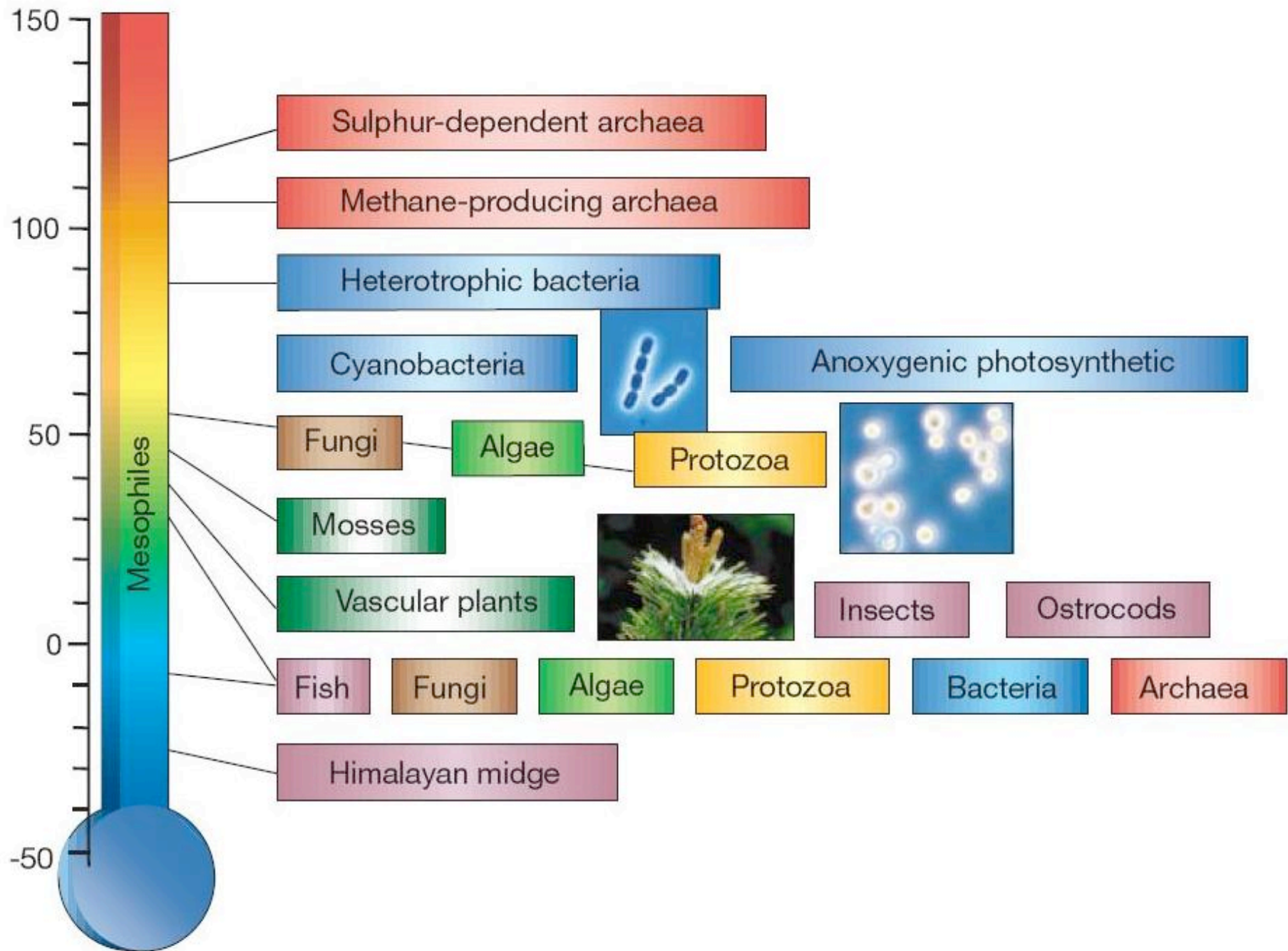
Extremophiles

2 types:

a) **Generalists** – live in normal conditions, but tolerate the extreme

b) **Specialists** – prefer extreme conditions

- To them their conditions are optimal





LEC - Lecturers

Miroslav Radman – INSERM U 571, Paris; MedILS, Split

Eduardo Rocha – Université Paris 6; Institute Pasteur, Paris

Ksenija Zahradka – Rudjer Boskovic Institute, Zagreb; MedILS, Split

Andrew Pohirille – NASA Ames Research Center, USA



LEC – A Typical Day

09:00 – 10:00 Breakfast

10:00 – 11:00 Presentation of the workshop and participants - round table

11:00 – 13:00 Work in Groups (i)

14:00 – 15:00 Lunch

16:00 – 18:30 Work in Groups (ii)

18:30 – 19:00 Coffee Break + Refreshments

19:00 – 20:00 Lecture + Discussion

20:15 – 21:30 Dinner