Freshwater Alga and Cyanobacteria Growth Inhibition Test

OECD Guideline for testing of chemicals no. 201

Omya Microbiology

OECD Guideline for testing of chemicals no. 201

"Freshwater Alga and Cyanobacteria, Growth Inhibition Test"

Green alga *Desmodesmus subspicatus*

- freshwater unicellular alga
- model organism for investigating ecotoxicological issues
- strain: 86.81 SAG (recommended from OECD guideline no. 201)

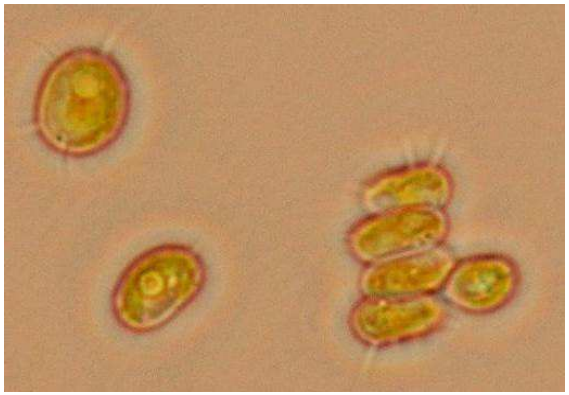

Figure 1: Test organism green algae *D. subspicatus* (400 x magnification)

Principle of the test

- Determine the toxic effect of a substance on the growth of *D. subspicatus*
- test organism is exposed to test substance (72 h)
  - → highest attainable concentration (limit test)
    = determination if there is a toxic effect (qualitative statement)
  - → various concentrations
    = determination of EC50 value (quantitative statement)
- Increase of biomass (cell density) is determined
  - → every 24 h during 72h test period
  - → treatment group(s) vs. unexposed control group
  - → flow cytometer

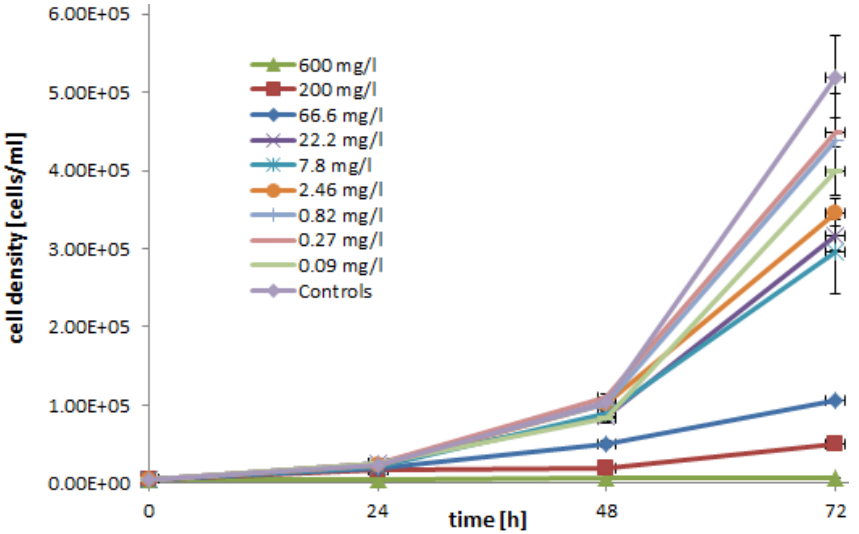

Figure 2: Average growth curves of treatment and unexposed control cultures (experimental data)

www.omya-microbiology.com
info@omya-microbiology.com

OECD Guideline for testing of chemicals no. 201

"Freshwater Alga and Cyanobacteria, Growth Inhibition Test"

Principle of the test (continued)

- Determination of average growth rates and growth inhibition
  - → treatment group(s) vs. unexposed control group
  - → growth inhibition = toxic effect of test substance for tested concentration(s)

- Analysis of statistical significant differences ($P < 0.05$):
  - → one-way analysis of variance (ANOVA)
  - → Dunnett's multiple comparison test

- Determination of EC50 value
  - → non-linear regression analysis

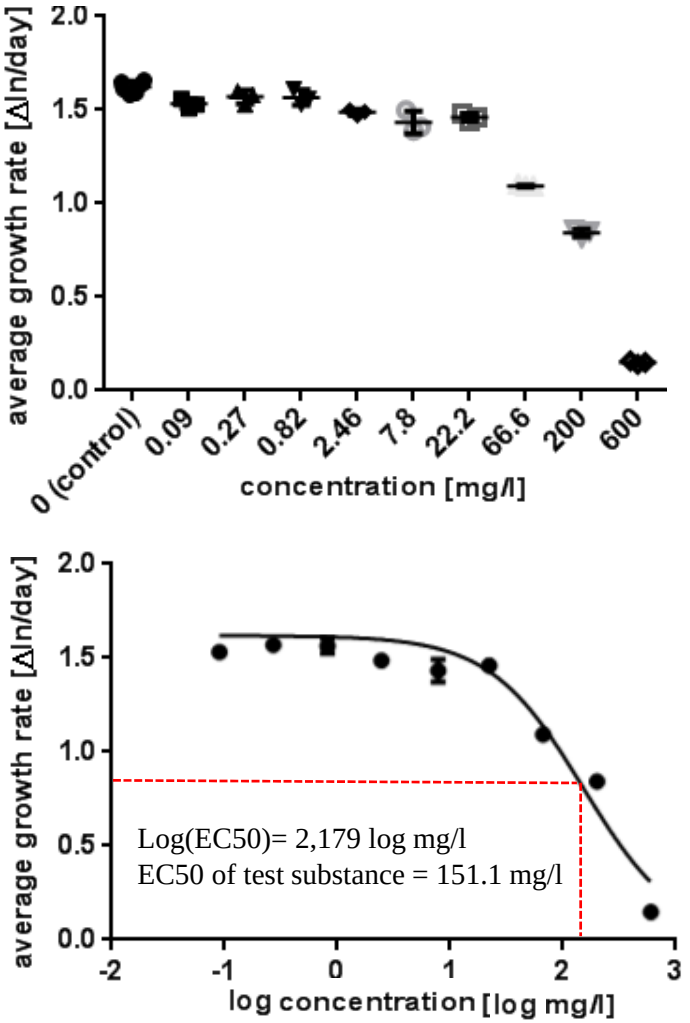

Figure 3: Average growth rates of treatment and unexposed control culture (experimental data)

www.omya-microbiology.com
info@omya-microbiology.com

...and much more in our ISO 9001 certified BSL2 labs

Please contact us:

Omya International AG
Microbiology
Baslerstrasse 42
CH-4665 Oftringen

+41 62 789 2512 or
+41 62 789 2415 or
+41 79 346 9156

www.omya-microbiology.com
info.microbiology@omya.com