

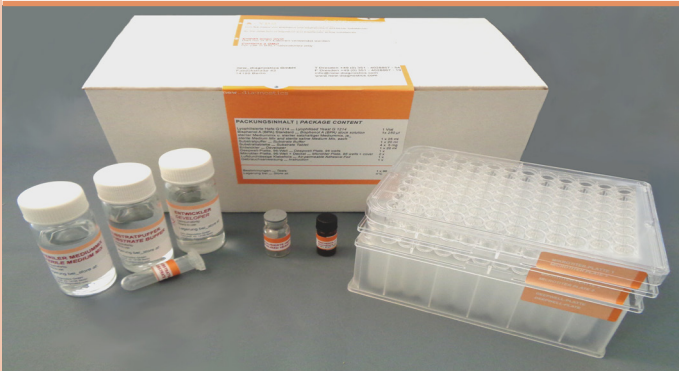
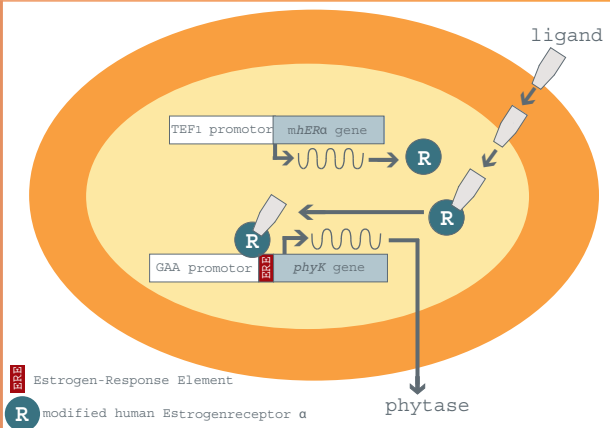
A-YBS

Innovative biological measurement system for the detection of cumulative activity of bisphenols

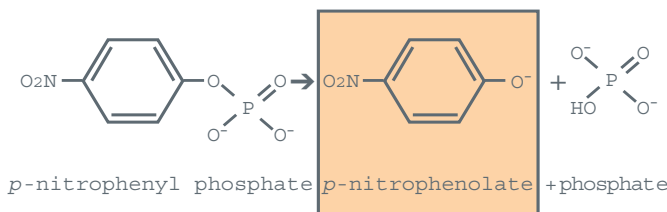
The biological test system **A-YBS** is an effect-directed, yeast based assay for a sensitive detection of cumulative activity of bisphenols in all types of aqueous samples including eluates and extracts. The **A-YBS** measures the activity of bisphenols, especially bisphenol A and bisphenol Z in the sample, in a fast, easy, economic, and reliable manner. It is therefore ideal for food and environmental analysis.

MEASUREMENT PRINCIPLE

The **A-YBS** uses the salt- and temperature-tolerant yeast *Arxula adenivorans* as test organism, in which the modified gene for the human estrogen receptor alpha (hERα) and a reporter gene have been integrated. The binding of ligands to the receptor will subsequently activate the production of the reporter enzyme phytase. The amount of the reporter enzyme produced correlates with the total concentration of bisphenols in the sample. After addition of a chromogenic substrate, the reporter enzyme concentration can be measured photometrically. Bisphenol A (bpA) is used as reference standard for the calibration.



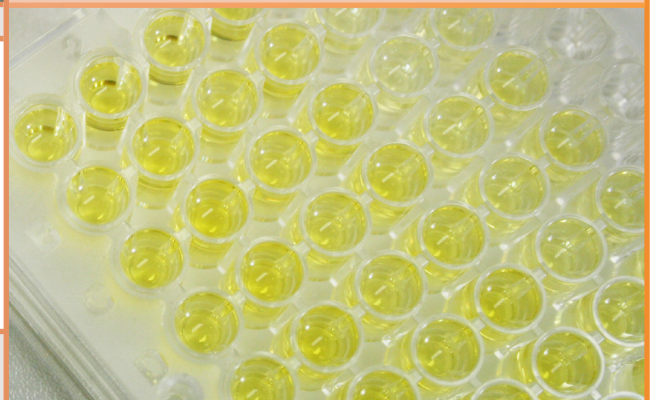
▲ A-YBS test kit



▲ Schematic reaction of phytase: Cleavage of *p*-nitrophenyl-phosphate into *p*-nitrophenolate (yellow)

APPLICATIONS

- Risk assessment of aqueous extracts and leachates from personal care products, packaging, plastics, toys (migration studies)
- Environmental monitoring of activity of bisphenols in wastewater, ground- and surface water
- Ultrapure, drinking and mineral water (quality control)



ADVANTAGES OF THE A-YBS

- High sensitivity for bpA and bpZ
- Low response for natural and synthetic estrogens
- Short processing time and easy handling
- No cell disruption necessary
- No sterile workplace required

LABORATORY REQUIREMENTS

- BSL1 laboratory (GMOs)
- Multichannel pipette (nominal vol. 100 µl)
- Temperature-controlled shaker (T = 86 °F, Orbit at least 3 mm)
- Microlitre/ Microplate centrifuge
- Photometer for microtiter plates (λ = 405 and 630 nm)



A - YBS

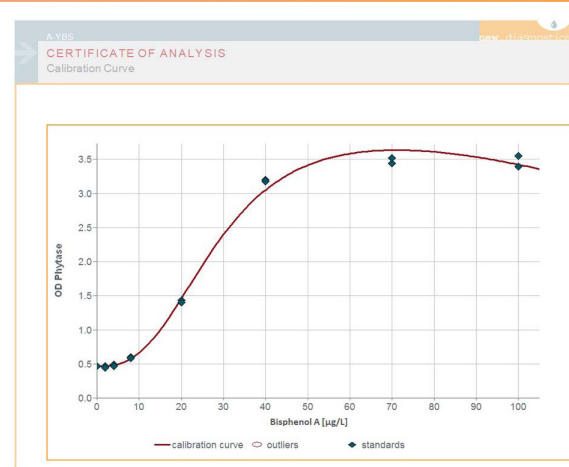
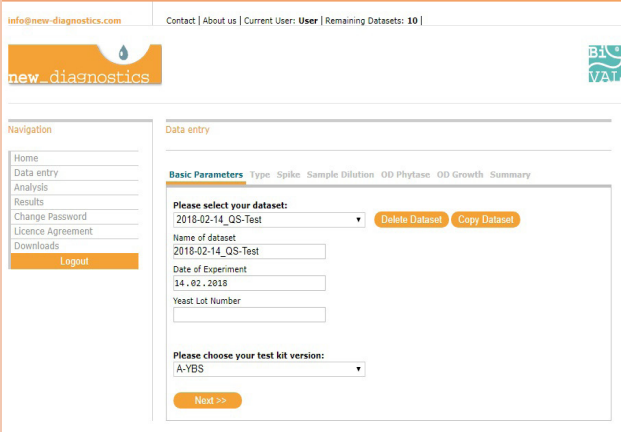
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Duration of Assay	approx. 26 h
Number of samples (BPAEQ)	max. 40
Validation	in-house
Calibration Range	0 - 100 µg/L bisphenol A (bpA)
Limit of Detection	6.4 µg/L bisphenol A (bpA)

BioVAL® - SOFTWARE FOR EXPERIMENTAL DESIGN AND STATISTICAL ANALYSIS



We will give you access to BioVAL® for an easy, reliable and uniform statistical analysis. The software enables you to analyse your data in a standardized manner even without special statistical knowledge. The results are presented in a comprehensive report.

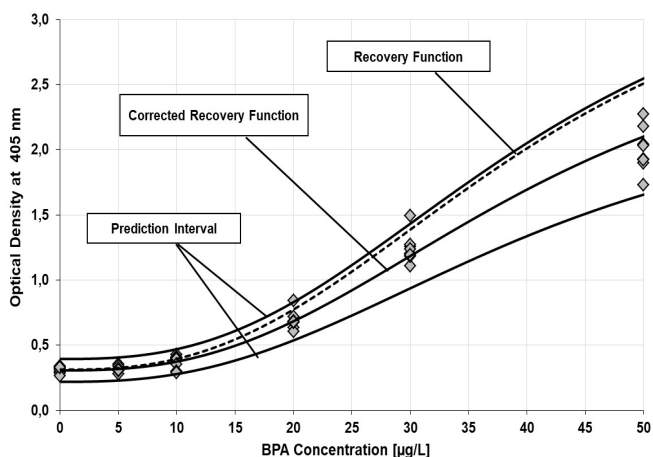


▲ Data analysis via BioVAL® webinterface

▲ Excerpt of the certificate of analysis

QuoData CERTIFICATE

The A-YBS test kit has been awarded the QuoData certificate of matrix comprehensive validation. This guarantees continuous high quality and reliability of our test kits.



▲ Validation: optical densities with 90 % prediction interval

The validation of the A-YBS was performed according to a factorial in-house validation study with eight different water samples each spiked with different concentrations of bpA.

The range of water types comprised a heterogeneous set of samples with different samples matrices e. g. surface water and samples from wastewater treatment plants. The planning and evaluation of the validation was realized by QuoData GmbH.

The A-YBS exhibits a low in-house reproducibility standard deviation of ≤ 10 % in the measurement range and a good recovery of spiked bpA.