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Influence of AQUANOVA benzoic acid solubilisate on yeast growth in nutrient solution for various pH values

Against yeast growth, benzoic acid is only effective in its undissociated form. This leads to the fact that it can almost only be used as a preservative in acidic foodstuffs or in acidic intermediate production stages (pH value < 4).

In the test series conducted in my laboratory one aspect examined was the effectiveness of benzoic acid in the form of AQUANOVA benzoic acid solubilisate in comparison to benzoic acid with respect to yeast growth in Yeast Malt Broth (company Sigma).

The results can be summarised as follows:

As expected, benzoic acid at pH 6,2 in an aqueous solution showed no or at best only a slight inhibiting effect on the yeast growth.

With AQUANOVA benzoic acid solubilisate from a concentration of 500 – 1.000 ppm (= 100 – 300 ppm of benzoic acid) a clear inhibition on the growth of the yeast was found. At a concentration of 2.500 ppm benzoic acid solubilisate (= 500 ppm benzoic acid) a continuous reduction of yeast cells was found over 15 days and after 22 days the test solution was free of germs.

The inhibitive effect of the benzoic acid with respect to yeasts, which previously could only be used at a pH value < 4, can also be used at pH 6,2 with AQUANOVA benzoic solubilisate. Clearly, here with the aid of the benzoic acid solubilisate, the benzoic acid in its undissociated form can be passed on to the cell where it can take effect.

