

# SEWAGE SLUDGE PARTICLE SIZE FRACTIONS AFFECT KERATINOLYTIC AND KERATINOPHILIC FUNGI

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## Summary

Previous studies indicated that particle size distribution affects the composition of keratinolytic and keratinophilic fungi in sewage sludge. The present study was to determine the composition of these fungi in sludge particle size fractions (> 1, 1–0.5, 0.5–0.25, 0.25–0.125, 0.125–0.063, 0.063–0.032 and < 0.032 mm) in a model experiment. In the original sludge sample and its fractions, the composition of keratinolytic and keratinophilic fungi was determined by using the hair baiting method. The composition of actidione-resistant fungi was also determined by using the dilution method and the Wiegand medium supplemented with chloramphenicol (100 mg/dm<sup>3</sup>) and actidione (500 mg/dm<sup>3</sup>). The number of keratinolytic and keratinophilic fungi isolated by the hair baiting method was lower in fractions than in the original sludge sample. In contrast, fungal quantities obtained by the dilution method were higher in fractions than in the original sludge sample. Qualitative differences were also observed. The conclusion was that nutrient factors associated with sludge particle size fractions, chiefly total sulfur content and C:S ratio, affected the composition of keratinolytic and keratinophilic fungi in the sludge more than the fungal propagule quantities (inocula).

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