445 Research paper

Sewage sludge and liquid pig manure as possible sources of antibiotic resistant bacteria

by Hölzel, C. S., Schwaiger, K., Harms, K., Küchenhoff, H., Kunz, A., 2010 Environmental Research 110: 318-326

In **Significant Impact Groups:**

Pathogen management \ None Prudent use AB

Species targeted: Pigs;

Age: Not stated;

Summary:

In this study, liquid pig manure (n=305) and sewage sludge (n=111) - used as agricultural fertilizers between 2002 and 2005 - were investigated for the presence of Escherichia coli, Enterococcus faecalis and Enterococcus faecium. Bacteria were tested for their resistance against 40 chemotherapeutics including several "reserve drugs". E. coli (n=613) from pig manure were at a significantly higher degree resistant to streptomycin, doxycycline, spectinomycin, cotrimoxazole, and chloramphenicol than E. coli (n=116) from sewage sludge. Enterococci (Ent. faecalis, n=387, and Ent. faecium, n=183) from pig manure were significantly more often resistant to high levels of doxycycline, rifampicin, erythromycin, and streptomycin than Ent. faecalis (n=44) and Ent. faecium (n=125) from sewage sludge. Significant differences in enterococcal resistance were also seen for tylosin, chloramphenicol, gentamicin high level, fosfomycin, clindamicin, enrofloxacin, moxifloxacin, nitrofurantoin, and quinupristin/dalfopristin. High rates of (multi-) resistant bacteria in pig manure emphasize the need for a prudent - cautious - use of antibiotics in farm animals.

Where to find the original material:

https://pubmed.ncbi.nlm.nih.gov/20303077/; 10.1016/j.envres.2010.02.009

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