THE FATE OF ANTIBIOTICS DURING COMPOSTING AND ANAEROBIC DIGESTION

Dr. Osman Arikan
Associate Professor f Environmental Engineering
Istanbul Technical University

ABSTRACT

The results of two studies on the fate of ionophores during composting and anaerobic digestion will be presented. In the first study, the persistence of four widely used ionophore feed supplements (monensin, lasalocid, salinomycin, or amprolium) in dairy manure and poultry litter were determined. Results show that composting was effective for lasalocid removal in poultry litter, but is likely too slow to be useful in practice (8-12 weeks at 65 °C for > 90% residue removal). Composting was effective for amprolium removal from poultry litter and salinomycin in dairy manure, but both required 4- 6 weeks for > 90% removal. However, composting did not increase the removal rates or salinomycin in poultry litter or the removal rates of lasalocid or amprolium in dairy manure. In the second study, the fate and effect of monensin during the anaerobic digestion of dairy manure were evaluated. Results show that anaerobic digestion may be an effective treatment for removing monensin in dairy manure. However, high monensin levels at 10 mg/L significantly affect methane production and result in digester instability.