**Title: The Occurrence of Estrogen and other Steroids in anaerobically digested waste**

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Endocrine Disrupting(ED) substances contaminating the environment is a present-day public health concern. Steroids, a class of ED hormones, have been drawing the attention of researchers across the world due to their detrimental effects on various species of aquatic animals and humans. Endogenous steroidal estrogens, such as estrone and 17β-estradiol found in very low concentrations in the environment, can affect the hormonal balance of various fish species, thus posing a significant concern. Male fish species exposed to estrogens in nanogram concentration showed a high incidence of intersexuality and feminization. In humans, exposure to these hormones are known to cause infertility and cancer.

Farmers routinely administer supplements and growth promotors containing synthetic and natural hormones to beef cattle to improve production efficiency. As a result of these feeding operations, steroidal hormones have been detected in runoff, soil and manure samples. These steroidal hormones enter the environment when cattle waste is applied to agricultural lands as manure. Hence it is important to analyze the potential risk of applying cattle waste directly from the storage systems of the feeding operations to the farming lands. During anaerobic digestion (a farm animal waste treatment process), free estrogens undergo microbial degradation to their conjugated forms, which are more mobile and persistent in the environment. Our research is focused on estimating the concentration of free and conjugated estrone and 17β-estradiol estrogens in anaerobically digested cattle waste using liquid and gas chromatographic-mass spectrometric techniques. Data gained from this research will be used towards studying the occurrence, degradation and transportation of these hormones from the waste disposal systems to the environment. The outcome of this study will also assist in regulating disposal and waste management practices. The design of a standard method used to study the fate of these estrogens before and after anaerobic digestion of waste along with the preliminary results will be presented.