**Steroid conjugates in New Zealand’s dairy environment – is there a risk?**

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Free estrogens are dominant in mammalian faeces, however, its conjugated forms are primarily present in urine, and are more hydrophilic. Estrone-3-sulfate appears to be the dominant estrogen conjugate in cattle urine. Although estrogen sulfates are considered as biologically inactive in terms of their potential to bind to the estrogen receptor family, deconjugation of estrogen sulfates leads to the formation of potent estradiol and its metabolite estrone which are known endocrine disruptors. New Zealand’s agricultural sector plays an important role in its overall economy, and according to Statistics New Zealand, dairy products accounted for ~19% of the annual exports in 2007. The dairy cattle population of nearly 5.3 million outnumbers the human population by over a million heads, and most of the livestock continuously graze the pastures throughout the year. According to one estimate, the combined livestock population in New Zealand excretes about 40 times the amount of urine generated by the human population, and in recent times land application of dairy effluent has become increasingly popular among the dairy farmers. Furthermore, it can be expected that approximately 80 % of the defecations and urinations in a grazed dairy system occur on the paddock. Therefore potential exists for steroid estrogens, and in particular for estrone and estrone-3-sulfate to reach aquatic bodies via surface runoff or leaching. Thus, knowledge about the fate and behaviour of these compounds is crucial for a proper risk assessment of hormone exposure in the environment. This study will provide an estimation of total steroid hormonal mass loading in dairy farm soils of NZ using daily estrogen excretion rate of dairy cattle employing an empirical approach. Finally, results from a laboratory study on the degradation and sorption potential of estrone-3-sulfate in selected pasture soils of NZ will be presented and associated environmental risk will be discussed.