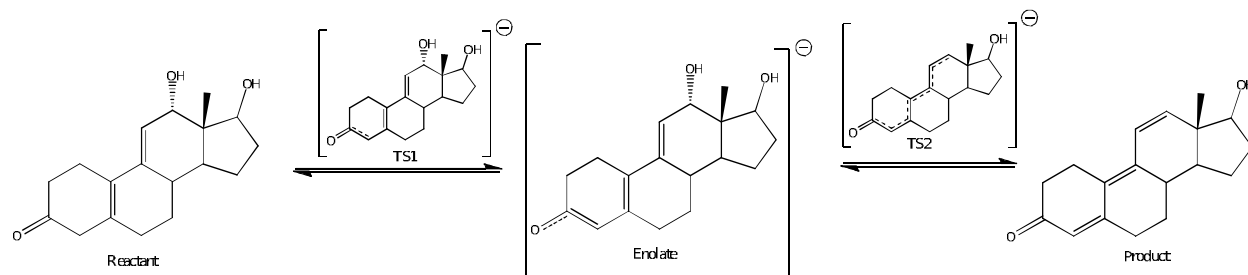


Reformation of Bovine Growth Hormones in Alkaline Solution

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Many synthetic chemicals result in undesired effects on the endocrine system and the reproductive system and may even cause cancer. A bovine growth steroid such as trenbolone impairs cardiovascular function and sleep patterns, increases blood pressure, and negatively effects the kidneys. This harsh steroid can potentially shut down the body's testosterone production. Particles of decomposed trenbolone may enter the blood stream and cause anaphylactic reactions in the lungs.

There has been speculation regarding the fact that synthetic hormones such as trenbolone are contaminating surface water and ground water through human or animal wastes. A previous study has shown that the steroid does not rapidly degrade in water as expected. Instead, the initially-formed 12 OH derivatives were found to revert to the parent steroid and prolong the life of the drug in surface water. This discovery has led to broader implications that involve other drugs that were once considered safe in the alkaline environment.

The primary focus of this study is to analyze the transition states and intermediates during decomposition and the reformation of trenbolone, as well as to determine the decomposition products and the probability of its reformation back into its initial form or any other form of steroids.