ABSTRACT

STEREOSPECIFIC REDUCTION OF SAPOGEN-3-ONES

A method to stereospecifically prepare a steroidal sapogenin or a derivative thereof by reducing a 3-keto,5β-H steroidal sapogenin with a hindered organoborane or an organo-aluminium hydride. A 3β-hydroxy,5β-H steroidal sapogenin or derivative thereof may be prepared by reducing the 3-keto,5β-H steroidal sapogenin using as reducing agent a relatively highly hindered organoborane reagent or by $S_N 2$ inversion of a 3α-hydroxy,5β-H steroidal sapogenin or derivative thereof. The organo-aluminium hydride may be used to prepare a 3α,5β-H steroidal sapogenin or derivative thereof. The invention provides a convenient route to useful steroidal sapogenins such as sarsasapogenin, episarsasapogenin, smilagenin, epismilagenin and esters thereof, from readily available or easily preparable starting materials (e.g. diosgenone, preparable from diosgenin).

No Figure