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New Syntheses of Estrone, d,l-8-Iso-oestrone and d,l-19-Nortestosterone

Torgov Cyclization

Significance: In 1963, Ananchenko and Torgov described the carbocyclization of an achiral diketone to give a tetracyclic intermediate (Torgov’s diene) that provided an early pathway for the total synthesis of steroid hormones. This method has been used for the industrial-scale production of certain steroids. However, an enantioselective variant of the Torgov reaction has long remained elusive.