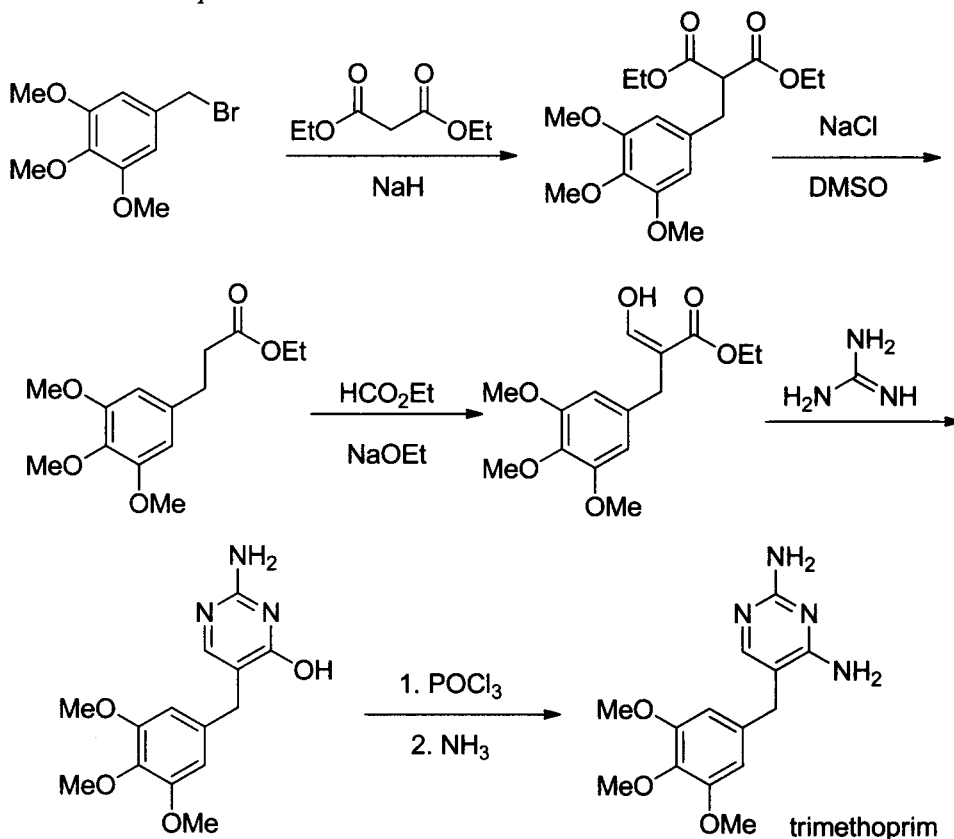


a generic drug, a variety of brand names including Allohexal and Progot are used. Its synthesis is very simple. Condensation of hydrazine with ethyl 2-cyano-3-ethoxyacrylate in the presence of formamide leads to allopurinol.³⁸ Hydrazine obviously gives rise to the pair of adjacent nitrogen atoms in the pyrazole ring and ester group is the origin of the carbonyl group.

13.3.2 Trimethoprim



Trimethoprim is a bacteriostatic antibiotic known as dihydrofolate reductase inhibitors, mainly used in the prevention and treatment of urinary tract infections. It was formerly marketed by GlaxoSmithKline under trade names including Proloprim, Monotrim, and Triprim. One recent trimethoprim's synthesis starts from the alkylation of malonate.³⁹ It was proved to be higher yielding to add the aldehyde function group after decarboxylation rather than trying to reduce an ester to an aldehyde. Decarboxylation is carried out using the Krapcho conditions. Concentration with ethyl formate and cyclization with guanidine gives the pyrimidine ring system. Aromatic nucleophilic substitution in the pyrimidone then gives trimethoprim.