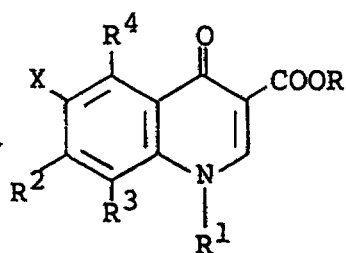


BENZOHETEROCYCLIC COMPOUNDS

ABSTRACT

Novel 4-oxoquinoline-3-carboxylic acid compounds of the formula:



[1]

wherein R¹ is cyclopropyl which may have 1 to 3 substituents of alkyl and halogen; phenyl which may be substituted by 1 to 3 substituents of alkoxy, halogen and OH; alkyl which may be substituted by halogen, alkanoyloxy or OH; alkenyl; or thienyl, R² is 5- to 9-membered saturated or unsaturated heterocyclic ring which may be substituted, R³ is H, alkyl or halogen, R⁴ is alkyl or halogen, R is H or alkyl, R¹ and R³ may be taken together to form $\begin{array}{c} \text{-CH-CH}_2\text{-O-} \\ | \\ \text{R}^{31} \end{array}$ wherein R³¹ is H or

alkyl, and X is halogen, provided that R³ and R⁴ are not simultaneously halogen, and that when R³ is H, R⁴ is alkyl, and salts thereof, said compounds having excellent anti-microbial activity and hence being useful as an antimicrobial agent, and a pharmaceutical composition containing said compound as an active ingredient.

This Sheet Has Been Replaced



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