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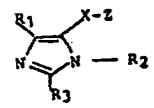
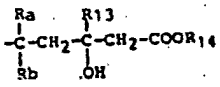
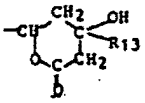
(I) 

(II) 

(III) 

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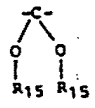
(V) 

(57) Abstract

Compounds of formula (I) and the pharmaceutically acceptable acid addition salts thereof, wherein R_1 and R_2 are alkyl not containing an asymmetric carbon atom, cycloalkyl, adamantyl-1 or possibly substituted phenyl, R_3 is hydrogen, alkyl not containing an asymmetric carbon atom, cycloalkyl, adamantyl-1, styryl or possibly substituted phenyl, X is $-(CH_2)_m-$, $-CH=CH-$, $-CH=CH-CH_2-$ or $-CH_2-CH=CH-$, wherein m is 0, 1, 2, or 3, and Z is formula (II) or formula (III) or with Ra is hydrogen and Rb is hydroxy, or CRaRb is formula (IV) or formula (V) wherein each R_{15} is primary or secondary alkyl not containing an asymmetric carbon atom, the two R_{15}'s being the same, or the two R_{15}'s taken together are $-(CH_2)_q-$, wherein q is 2 or 3, R_{13} is hydrogen or alkyl, and R_{14} is hydrogen, a physiologically acceptable ester group, or a pharmaceutically acceptable cation, with certain provisos and the use thereof for inhibiting cholesterol biosynthesis and lowering the blood cholesterol level and, therefore, in the treatment of hyperlipoproteinemia and atherosclerosis, pharmaceutical compositions comprising such compounds and processes for and intermediates in the synthesis of such compounds

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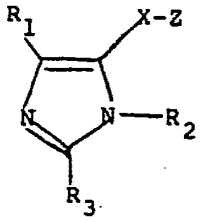
IMIDAZOLE ANALOGS OF MEVALONOLACTONE AND DERIVATIVES THEREOF

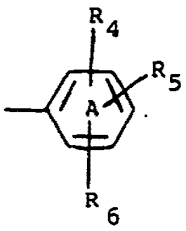
This invention relates to compounds of the formula



(I),

and the pharmaceutically acceptable acid addition salts thereof,

wherein R_1 is C_{1-6}alkyl not containing an asymmetric carbon atom, C_{3-7}cycloalkyl, adamantyl-1 or



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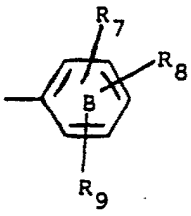
wherein R_4, R_5 and R_6 are as defined below,

R_2 is C_{1-6} alkyl not containing an asymmetric carbon atom, C_{3-7}cycloalkyl, adamantyl-1 or



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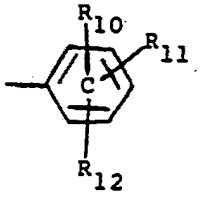
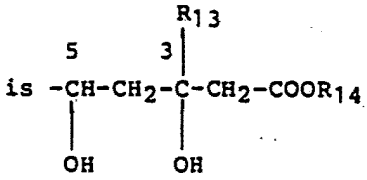
wherein R_7, R_8 and R_9 are as defined below,

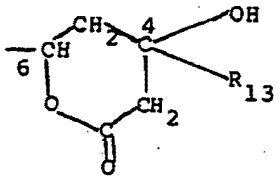
R_3 is hydrogen, C_{1-6}alkyl not containing an asymmetric carbon atom, C_{3-7}cycloalkyl, adamantyl-1, styryl or

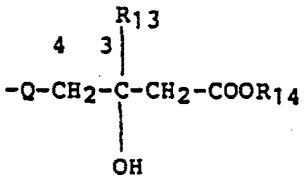


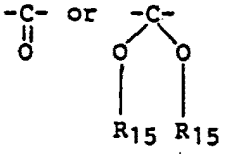
wherein R_{10}, R_{11} and R_{12} are as defined below,

X is $-(CH_2)_m-$, $-CH=CH-$, $-CH=CH-CH_2-$ or $-CH_2-CH=CH-$, wherein m is 0, 1, 2 or 3, and

Z is  (a),

 (b) or

 (c),

wherein Q is  (cb),

wherein each R_{15} is primary or secondary C_{1-6}alkyl not containing an asymmetric carbon atom, the two R_{15}'s being the same, or the two R_{15}'s taken together are $-(CH_2)_q-$, wherein q is 2 or 3,

R_{13} is hydrogen or C_{1-3}alkyl, and

R_{14} is hydrogen, R_{16} or M,

wherein R_{16} is a physiologically acceptable ester group, and

M is a pharmaceutically acceptable cation,

with the proviso that Z may be a group of Formula c only when (i) X is -CH=CH- or $-CH_2-CH=CH-$, (ii) R_{13} is C_{1-3}alkyl or (iii) both (i) and (ii),

wherein each of R_4, R_7 and R_{10} is independently hydrogen, C_{1-3}alkyl, n-butyl, i-butyl, t-butyl, C_{1-3}alkoxy, n-butoxy, i-butoxy, trifluoromethyl, fluoro, chloro, bromo, phenyl, phenoxy or benzyloxy,

each of R_5, R_8 and R_{11} is independently hydrogen, C_{1-3}alkyl, C_{1-3}alkoxy, trifluoromethyl, fluoro, chloro, bromo, $-COOR_{17}$, $-N(R_{19})_2$, phenoxy or benzyloxy,

wherein R_{17} is hydrogen, R_{18} or M,

wherein R_{18} is C_{1-3}alkyl, n-butyl, i-butyl, t-butyl or benzyl, and

M is as defined above, and

each R_{19} is independently C_{1-6}alkyl not containing an asymmetric carbon atom, and

each of R_6, R_9 and R_{12} is independently hydrogen, C_{1-2}alkyl, C_{1-2}alkoxy, fluoro or chloro,

with the provisos that not more than one substituent on each of Rings A, B and C independently is

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