

QUARternary AMMONIUM COMPOUNDS AND THEIR USE AS ANTIMUSCARINIC AGENTS

ABSTRACT

Novel quaternary ammonium compounds of the formula (I) and any stereoisomers thereof, wherein, R_1 , R_2 , and R_3 independently represent C_1 - C_6 alkyl, optionally substituted with phenyl or hydroxyl, or both, and wherein any two of R_1 , R_2 and R_3 may form a ring together with the quaternary ammonium nitrogen; R_4 represents $-H$, $-CH_3$, or $-CO-R_{4-1}$, wherein R_{4-1} represents $-(C_1-C_4 \text{ alkyl})$, $-(C_1-C_4 \text{ alkoxy})$, or $NR_{4-2}R_{4-3}$, wherein R_{4-2} and R_{4-3} independently represent $-H$ or $-(C_1-C_4 \text{ alkyl})$; R_5 , R_6 and R_7 independently represent $-H$, $-OCH_3$, $-OH$, $-CONH_2$, $-SO_2NH_2$, $-F$, $-Cl$, $-Br$, $-I$, $-CF_3$, or $-(C_1-C_4 \text{ alkyl})$, optionally substituted with one or two $-OH$, $-(C_1-C_4 \text{ alkoxy})$, $-COOH$, or $-CO-O-(C_1-C_3 \text{ alkyl})$; and X represents an anion of a pharmaceutically acceptable acid, the compounds for use as medicaments, use of the compounds for the manufacture of specific medicaments, and pharmaceutical compositions comprising the compounds. The present invention also concerns a method of treatment involving administration of the compounds.

Figure 1