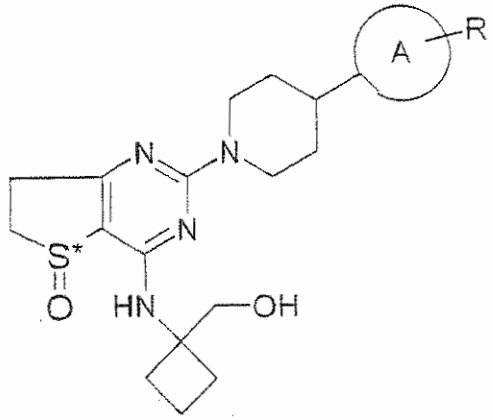
2.1 SUMMARY

In an aspect, there is provided a compound of formula I



I,

wherein Ring A is a 6-membered aromatic ring which may optionally comprise one or two nitrogen atoms and

wherein **R** is Cl and

wherein **R** may be located either in the para-, meta- or ortho-position of Ring A,

wherein S* is a sulphur atom that represents a chiral center,

and all pharmaceutically acceptable salts thereof, enantiomers and racemates thereof.

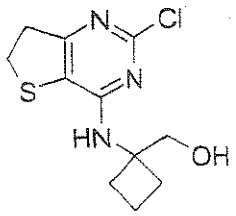
In another aspect, there is provided the compound as defined above for use as a medicament.

In another aspect, there is provided the use of a compound as defined above for the manufacture of a medicament for the treatment of a disease which can be treated by the inhibition of the PDE4-enzyme.

In another aspect, there is provided a pharmaceutical composition comprising a compound as defined above.

In another aspect, there is provided a pharmaceutical composition characterised in that they contain a compound of formula **I**, **II** or **III** as defined above in combination with one or more active substances selected from the group consisting of betamimetics, corticosteroids, anticholinergics, other PDE4 inhibitors, NSAIDS, COX2-inhibitors, EP4-receptor antagonists, EGFR-inhibitors, LTD4-antagonists, CCR3-inhibitors, iNOS-inhibitors, MRP4-inhibitors and SKK inhibitors.

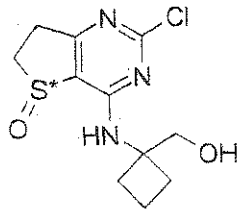
In another aspect, there is provided an intermediate of formula **VIII**



VIII

and its salts.

In another aspect, there is provided an intermediate of formula **IX**



IX

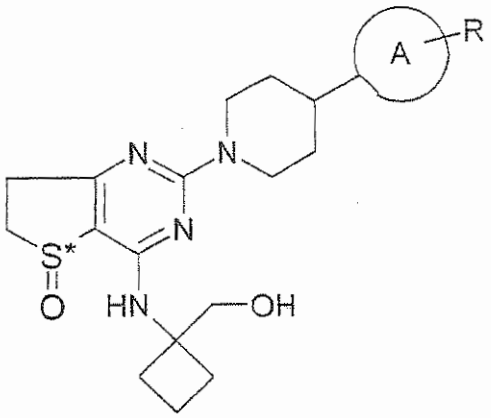
wherein S* stand for a sulphur atom that represents a chiral center,

and its salts.

2.2 DESCRIPTION OF THE INVENTION

Surprisingly it has been found that the compounds of the invention are due to their particular substitution pattern particularly suitable for the treatment of inflammatory disease. The compounds of the invention are further superior to the corresponding piperazino-dihydrothienopyrimidine sulfoxides of the prior art document WO 2009/050248.

The present invention therefore relates to compounds of formula I



I,

wherein Ring **A** is a 6-membered aromatic ring which may optionally comprise one or two nitrogen atoms and

wherein **R** is Cl and

wherein **R** may be located either in the para-, meta- or ortho-position of Ring **A**,

wherein **S*** represents a sulphur atom that is a chiral center,

and all pharmaceutically acceptable salts thereof, enantiomers and racemates thereof, hydrates, solvates and polymorphs thereof.

The invention further relates to the above-mentioned compounds of formula I, wherein **R** is Cl and wherein **R** is preferably located in the para-position of Ring **A**, and all pharmaceutically acceptable salts thereof, enantiomers and racemates thereof, hydrates, solvates and polymorphs thereof.