

per kilogram of body weight per day. Treatment most preferably is with 2% aqueous formulations, preferably by infusion at early treatment stages and by standard pharmaceutical formulations at a later stage. In the treatment of coccidiosis it is preferred to administer the compounds in the drinking water of the poultry infected with the disease.

In addition to the foregoing methods of treating "patients" suffering from the disease states caused by the parasitic infections with the above defined protozoa, it is also advantageous to control the spread of the disease with prophylactic techniques. For example, not only has the spread of Chagas disease been associated with the metacyclic trypomastigotes present in the fecal fluids of insect vectors, but also through the blood administered in blood transfusions. Thus, the patients receiving blood transfusions may receive prophylactic treatment but also the blood, per se, may be pre-treated with the compounds of formula I in order to eliminate this source of parasitic infection.

Another way to advantageously administer compounds of this invention is to administer combinations of the compounds of this invention, preferably administering one member of the group of compounds defined by formula I wherein Y is other than H, and another member wherein Y is hydrogen, i.e. a combination of an arginine derivative and an agmatine derivative.

In addition to the foregoing method of use for the compounds of this invention, it is also advantageous to use compounds of this invention in combination with ornithine decarboxylase inhibitors in the treatment of coccidiosis, particularly when the poultry may have parasitic infections with different species of *Eimeria*, e.g., infections with *Eimeria tenella* and *Eimeria necatrix*.

The compounds of formula I may be formulated for use as anti-protozoal agents according to standard prior art teachings. Preferably use of physiological solutions having about 2% of the compounds of formula I may be useful for infusion, or more concentrated solutions may be used in drinking water. Other formulations, the preparation of which is well known in the art, may be used. Formulations and techniques, such as those disclosed in U.S. Pat. No. 4399151 may be used in the treatment of coccidiosis.

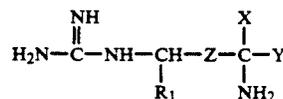
As is true for most classes of compounds found useful as chemotherapeutic agents certain sub-classes and certain species are preferred. In this instance those compounds wherein X represents a halomethyl (mono- or di-) are most preferred, those compounds wherein Z is either saturated or unsaturated are preferred, those compounds wherein Y is a COOH moiety are preferred over their ester derivatives. Conjunctive therapy with the preferred arginine derivatives and the preferred agmatine derivatives is also preferred. A preferred X and/or Z- modified arginine or agmatine compound is also preferred. Specifically preferred species are:

α -fluoromethyl arginine and its 3,4-dehydro analog,
 α -difluoromethyl arginine and its 3,4-dehydro analog,
 α -fluoromethyl agmatine and its 2,3-dehydro analog,

α -difluoromethyl agmatine and its 2,3-dehydro analog,
 α -acetylenic agmatine,
 α -acetylenic arginine and
 α -allenyl agmatine.

We claim:

1. A method of inhibiting the growth of the protozoa *Trypanosoma cruzi* which comprises administering protazoal inhibiting amounts of an X-substituted arginine or agmatine of the formula



and the pharmaceutically acceptable salts thereof, the individual and racemic mixtures of their optical isomers, wherein

R₁ is H or CH₃

Z is —CH₂—CH₂— or —CH=CH—, X is —CH₂F, —CHF₂, CHCl₂, —CHClF, —C≡CH or —CH=C=CH₂

Y is H or COOR with R being H or C₁₋₁₈ lower alkyl.

2. A method of treating an animal suffering from Chagas Disease which comprises administering to said animal a protozoal inhibiting amount of a compound defined in claim 1.

3. A method according to claim 2 wherein the X moiety of the compound utilized is a halomethyl moiety.

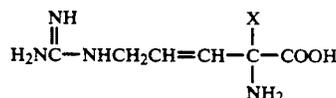
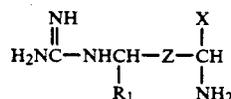
4. A method of claim 3 wherein X is fluoromethyl.

5. A method of claim 3 wherein X is difluoromethyl.

6. A method of claim 3 wherein the compound is an arginine derivative.

7. A method of claim 3 wherein the compound is an agmatine derivative.

8. Compounds of the formulae



the individual optical isomer and mixtures thereof, wherein

X is —CH₂F, —CHF₂ or —CH=C=CH₂,

Z is —CH₂—CH₂— or —CH=CH—,

and R₁ is hydrogen, with the proviso that when Z is —CH₂—CH₂—, X is —CH=C=CH₂.

9. A compound of claim 8 wherein X is —CH₂F or —CHF₂.

10. A compound of claim 8 wherein X is —CH=C=CH₂.

11. Compounds of claim 8 wherein the double bond is in its trans configuration.

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