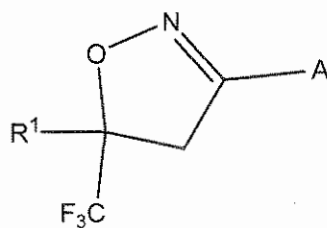


While the use of insecticides and pesticides have been beneficial, alternative or improved compounds, formulations, and methods are needed. Desirable compounds, formulations, and methods would not only provide alternative therapies, but would also overcome one or more of the limitations of current approaches. Such limitations include toxicity and safety of both the animal and the user/owner, limited efficacy (*e.g.*, potency and duration), and resistance issues. Also impacting the beneficial use of insecticides and pesticides are administration obstacles, which include mode and recurrence of administration. For example, reducing the frequency of administration while maintaining efficacy is desirable, as excessive and repeated treatment of animals is often inconvenient and/or difficult.

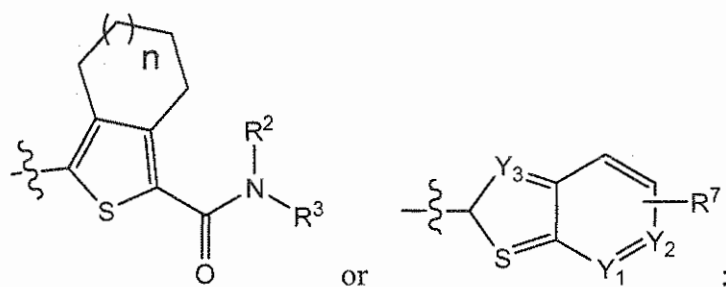
The present ~~invention~~disclosure encompasses parasiticidal compounds, methods, and formulations for use in and on animals and plants, and which provide alternative options for combating parasiticidal infestations, particularly ectoparasiticidal infestations. Further, certain aspects of the ~~invention~~disclosure overcome at least some limitations in the use of current insecticides and pesticides, particularly in providing effective long term, safe control of parasites.

In a first aspect, the disclosure provides~~Provided are~~ compounds, and salts thereof, of formula I:

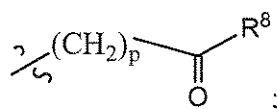


I

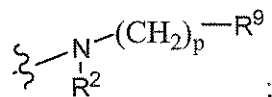
wherein A is



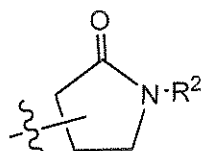
5 R^7 is hydrogen, halo, C_1-C_5 alkyl, or



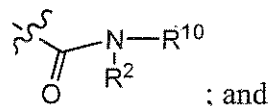
R^8 is hydroxy, $-O-(C_1-C_5 \text{ alkyl})$, or



R^9 is C_1-C_5 alkyl,



or



; and

R^{10} is hydrogen, C_1-C_5 alkyl, C_1-C_5 haloalkyl, C_1-C_5 cyanoalkyl, C_1-C_5 alkylthio, or C_2-C_5 alkynyl.

The ~~invention~~disclosure provides a formulation, including a pharmaceutical formulation, comprising a compound or salt of formula I and one or more acceptable carriers. The formulation may further comprise at least one additional active ingredient. A pharmaceutical formulation of the ~~invention~~disclosure may be a human pharmaceutical formulation or a veterinary pharmaceutical formulation.

In a second aspect, the disclosure provides a formulation comprising a compound or salt as defined above, or a salt thereof, and one or more acceptable carriers.

The ~~invention~~disclosure provides a method of controlling ecto- and endoparasite infestations of an animal in need thereof comprising administering an effective amount of a compound or salt of formula I to said animal. The method may further provide administering at least one other active ingredient to said animal. The animal may be a mammal, and may be a human or a companion animal, for example, a dog or cat.

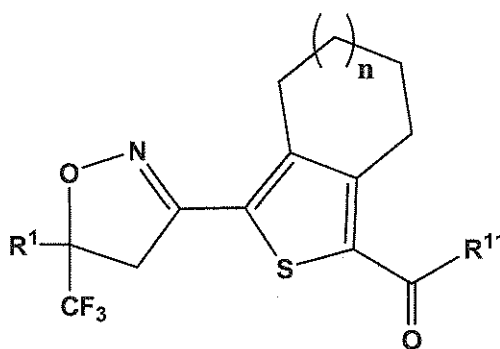
5 | The present ~~invention~~disclosure provides a method for preventing and
treating diseases transmitted through parasites comprising administering at least one
compound of the ~~invention~~disclosure to an animal in need thereof.

10 | In a third aspect, the disclosure provides the use of a compound as defined
above in the manufacture of a medicament for controlling a parasite infestation in or on an
animal in need thereof.

5 The ~~invention~~disclosure provides a method for controlling parasites, characterized in that a compound of formula I is allowed to act on the pests and/or their habitat. The ~~invention~~disclosure provides the use of compounds or salts thereof of formula I for controlling pests.

10 The ~~invention~~disclosure provides a compound or salt of formula I for use in therapy. The ~~invention~~disclosure further provides a compound or salt of formula I for use in controlling ecto- and endoparasite infestations. The ~~invention~~disclosure also provides use of a compound or salt of formula I for the manufacture of a formulation or medicament for controlling ecto- and endoparasite infestations.

15 In a fourth aspect, ~~the invention~~disclosure provides compounds of Formula II, or a salt thereof, of the formula



II

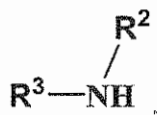
wherein n is 0 or 1;

20 R¹ is thienyl or phenyl, said thienyl or phenyl substituted with 2 or 3 of the same or different halo atoms; and

R¹¹ is hydroxy, -O-(C₁-C₄ alkyl), or a halo atom.

These compounds have utility as intermediates in the processes for preparing certain compounds of Formula I. These Formula II compounds may be chemically modified to result in certain Formula I compounds.

- 5 In a sixth aspect, the disclosure provides a process for preparing a compound as defined above, comprising reacting a compound as defined above with a compound of the formula



- 10 The host animal may be a mammal or non-mammal, such as a bird (turkeys, chickens) or fish. Where the host animal is a mammal, it may be a human or non-human mammal. Non-human mammals include domestic animals, such as livestock animals and companion animals. Livestock animals include cattle, camellids, pigs, sheep, goats, and