(PE 4932) (9171/87)

COMMONWEALTH OF AUSTRALIA

*Patents Act 1952*

P/00/001
Form 1
Regulation 9

# APPLICATION FOR A STANDARD PATENT OR A STANDARD PATENT OF ADDITION

608564

Insert full name(s) of applicant(s)

(71) I/We ..... VINCENT HENRY GUERRINI .....

Insert address(es) of applicant(s)

of ..... 173 CHATSWOOD ROAD, DAISY HILL, QLD, AUSTRALIA .....

Insert title of invention

(54) hereby apply for the grant of a ☑ standard patent ☐ patent of addition for an invention entitled ..... IMPROVEMENTS .....

IN THE INHIBITION OF ECTOPARASITES IN DOMESTIC ANIMALS .....

(tick appropriate box)

which is described in the accompanying ☑ provisional ☐ complete specification.

Insert name of a[rtist] inventor

(72) The actual inventor(s) of the said invention is/are ..... VINCENT HENRY GUERRINI .....

.....

Insert address for service of notices in Australia

(74) My/our address for service is ..... VETSEARCH, ~~PP~~ 173 CHATSWOOD ROAD, DAISY HILL 4128 QLD. ..... Attorney Code .....

**THESE SECTIONS ARE ONLY TO BE COMPLETED WHERE APPLICABLE:*

for Convention cases only

*(ONLY TO BE USED IN THE CASE OF A CONVENTION APPLICATION)*

Details of basic application(s) –

(31) Number of basic application .....

(33) Name of Convention country in which basic application was filed ..... ISO Code .....

(32) Date of basic application .....

for Divisional applications only

*(ONLY TO BE USED IN THE CASE OF A FURTHER APPLICATION MADE BY VIRTUE OF SECTION 51)*

(62) Number of original application .....

Person by whom made .....

for Patents of addition only

*(ONLY TO BE USED IN THE CASE OF AN APPLICATION FOR A PATENT OF ADDITION)*

I request that the patent may be granted as a patent of addition to the patent applied for on

(61) Application No. ..... Patent No. .....

in the name of .....

I request that the term of the patent of addition be the same as that for the main invention or so much of the term of the patent for the main invention as is unexpired.

Insert day, month and year form signed

Dated this SIXTEENTH day of OCTOBER 19 87

Signature of applicant or Australian attorney

TO

..... (Signature)

THE COMMISSIONER OF PATENTS

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification (Form 10 and true copy).

P/00/007

*Patents Act 1952*

# DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT

In support of the Application made by ... VINCENT HENRY GUERRINI

for a patent for an invention entitled ... IMPROVEMENTS IN THE INHIBITION OF ECTOPARASITES.

I, VINCENT HENRY GUERRINI

of 173 CHATSWOOD ROAD, DAISY HILL 4127 QLD

do solemnly and sincerely declare as follows:–

(1.) I am the applicant for the patent.

*(or, in the case of an application by a body corporate)*

~~1. I am authorized by ..... the applicant for the patent to make this declaration on its behalf.~~

(2.) I am the actual inventor of the invention.

*(or, where a person other than the inventor is the applicant)*

~~2. ..... of ..... is the actual inventor of the invention and the facts upon which I am / the ..... is entitled to make the application are as follows:–~~

.....

.....

.....

.....

Declared at DAISY HILL ..... this SIXTEENTH ..... day of OCTOBER 1987

*TO:*

THE COMMISSIONER OF PATENTS.

.....

*(Signature of Declarant)*

(IMPORTANT – Cross out inapplicable words in the above Form.)

C. J. THOMPSON, Commonwealth Government Printer

**(12) PATENT ABRIDGMENT** **(11)** Document No. **AU-B-11221/88**
**(19) AUSTRALIAN PATENT OFFICE** **(10)** Acceptance No. **608564**

(54) Title
**IMPROVEMENTS IN THE INHIBITION OF ECTOPARASITES IN DOMESTIC ANIMALS**

International Patent Classification(s)
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(60) Related to Provisional(s) : **PI4932**

(71) Applicant(s)
**VINCENT HENRY GUERRINI**

(72) Inventor(s)
**VINCENT HENRY GUERRINI**

(57) Azadirachtin-rich extracts of the seeds of the neem tree Azadirachta Indica A. Juss (Meliaceae) contain a range of liminoid chemicals, such as the tetranortriterpernoid, azadirachtin, which are active as insect anti-feedants, growth disruptors and insecticides but effects of azadirachtin against ectoparasites have not been described except for Australian Patent Applications 43018/85, 75714/87 (Blowflies) and 11220/88 (Lice).

## CLAIM

1. A pesticidal composition comprising azadirachtin or azadirachtin containing extracts including neem extracts with wool wax or fatty acids or anti-oxidants or acids.

8. A method of inhibiting and preventing ectoparasites comprising applying a composition of azadirachtin or azadirachtin containing extracts including neem extracts with wool fat or fatty acids or anti-oxidants or acids to the pests or their surroundings or a locus.

608564

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Form 10

PATENTS ACT 1952

# COMPLETE SPECIFICATION

(ORIGINAL)

**FOR OFFICE USE**

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Complete Specification—Lodged:
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TO BE COMPLETED BY APPLICANT

Name of Applicant:

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Actual Inventor:

VINCENT HENRY GUERRINI

Address for Service:

173 CHATSWOOD ROAD, DAISY HILL 4128, QUEENSLAND, AUSTRALIA.

Complete Specification for the invention entitled: IMPROVEMENTS IN THE INHIBITION OF ECTOPARASITES IN DOMESTIC ANIMALS.

The following statement is a full description of this invention, including the best method of performing it known to me:—*

* Note: The description is to be typed in double spacing, pica type face, in an area not exceeding 250 mm in depth and 160 mm in width, on tough white paper of good quality and it is to be inserted inside this form.

14599/78—L Printed by C. J. Thompson, Commonwealth Government Printer, Canberra

IMPROVEMENTS IN THE INHIBITION OF ECTOPARASITES IN DOMESTIC ANIMALS

This invention relates to pesticidal compositions and to methods of killing or repelling pests.

Infestations of animals by fleas (Ctenocephalides spp.), lice (Trichodectis and Heterodoxus spp.), mites (Otodectis and Sarcoptes spp.) are commonly found throughout the world and are the cause of irritation of the skin, scratching, rubbing and licking with consequential damage to the skin and hair coat, loss of appetite, weight gain and condition, and are also a health hazard to humans because the ectoparasites are able to transmit diseases.

Current methods of control include the application of mildly to highly toxic compounds such as dichlorvos, asuntol and the like.

The use of man-made insecticides with one mechanism of action such as the organophosphates, organochlorines and pyrethryns has induced resistance in ectoparasites.

From the above mentioned it should be appreciated that ectoparasitic infestations are a serious conditions in animals and that current methods of control are not satisfactory.

Azadirachtin-rich extracts of the seeds of the neem tree Azadirachta Indica A. Juss (Meliaceae) contain a range of liminoid chemicals, such as the tetranortriterpernoid, azadirachtin, which are active as insect anti-feedants, growth disruptors and insecticides but effects of azadirachtin against ectoparasites have not been described except for Australian Patent Applications 43018/85, 75714/87 (Blowflies) and 11220/88 (Lice).

It is a preferred objective of this invention to provide a composition of azadirachtin or azadirachtin rich extracts to prevent and inhibit the development of fleas including Ctenocephalides spp., Pulex irritans, Leptosilla segnis and Echinophaga gallinacea, and mites, including Sarcoptes Scabeie, Cnemidocoptes spp., Chorioptes spp., Notoendres spp., Otodectes spp. and Psoroptes spp.

It is a further objective of this invention to provide a composition to extend the presence of azadirachtin on a locus and to reduce the rate of degradation or oxidation of Azadirachtin.

The invention is a composition of azadirachtin or azadirachtin containing extracts or oils with wool wax with fatty acids with anti-oxidants and with acids.

In one embodiment the composition is further mixed with tween (Registered Trade Mark) or Span (Registered Trade Mark) and water to produce an emulsion which can be sprayed onto animals.

In another embodiment the composition is placed or impregnated into a device attached to an animal or person.

Further preferred embodiments of the invention shall become apparent from reference to the Examples:-

Example 1

Table 1 shows the number of fleas, lice, mites and ticks counted on six dogs before and after treatment with a composition of 10 ml neem oil with 2% azadirachtin. The composition was spread manually onto the infested areas of the skin and hair coat.

TABLE 1

| Time (Hours) | Lice | Fleas | Mites | Ticks |
|---|---|---|---|---|
| 0 | 375 | 321 | 23 | 12 |
| 1 | 24 | 13 | 12 | 8 |
| 5 | 5 | 5 | 9 | 3 |
| 10 | 0 | 0 | 3 | 3 |
| 24 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 |
| 144 | 0 | 0 | 0 | 0 |
| 396 | 0 | 13 | 0 | 0 |

As can be seen from Table 1 treatment of the hair and skin with the composition achieved a substancial reduction in the flea, lice, mite and tick population between 1 and 396 hours after treatment (treatment done at 0 hour).

Example 2

Table 2 shows the number of fleas, lice, mites and ticks counted on six dogs before and after treatment with a composition of 10 ml neem oil with 2% azadirachtin further blended with an oil, a detergent and water. The composition was sprayed onto the infested areas of the skin and hair coat.

TABLE 2

| Time (Hours) | Lice | Fleas | Mites | Ticks |
|---|---|---|---|---|
| 0 | 32 | 564 | 13 | 17 |
| 1 | 14 | 3 | 2 | 3 |
| 5 | 1 | 0 | 2 | 0 |
| 10 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 |
| 72 | 0 | 6 | 3 | 0 |
| 144 | 0 | 23 | 5 | 0 |
| 396 | 0 | 33 | 0 | 0 |

As can be seen from Table 2 spray treatment of the hair and skin with the composition achieved a substancial reduction in the flea, lice, mite and tick population between 1 and 396 hours after treatment (treatment done at 0 hour).

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A pesticidal composition comprising azadirachtin or azadirachtin containing extracts including neem extracts with wool wax or fatty acids or anti-oxidants or acids.

2. A pesticidal composition according to claim 1 wherein the fatty acids are oleic or linoleic or linolenic or palmitic or capric or lauric or myristic or palmitic or stearic or arachidic or beheric or cerotic, or montanic acid.

3. A pesticidal composition according to Claim 1 wherein the anti-oxidants are alpha-tocopherol or ascorbic acid (Vitamin C).

4. A pesticidal composition according to claim 1 wherein the acids are boric acid or proprionic or salicilic acids.

5. A pesticidal composition of any of the preceding claims further comprising a detergent and water.

6. A pesticidal composition according to claim 1 comprising from 0.1 to 99 parts by weight azadirachtin containing extracts, 1 to 99.8 parts by weight wool wax, 1 to 99.8 parts by weight linoleic acid, 1 to 99.8 parts boric or salicilic acid, 1 to 99.8 parts alpha tocopherol or ascorbic acid.

7. A pesticidal composition according to claim 1 comprising from 1 to 80 parts by weight azadirachtin containing extracts, 20 to 99 parts by weight wool wax, 20 to 99 parts by weight linoleic acid, 20 to 99 parts boric or salicilic acid and 20 to 99 parts alpha tocopherol or ascorbic acid.

8. A method of inhibiting and preventing ectoparasites comprising applying a composition of azadirachtin or azadirachtin containing extracts including neem extracts with wool fat or fatty acids or anti-oxidants or acids to the pests or their surroundings or a locus.

9. A method according to claim 9 wherein ectoparasites includes the eggs, larvae and adult forms of ectoparasites.

VINCENT HENRY GUERRINI

DATED 12th OF DECEMBER, 1990