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Composition for treating poultry litter

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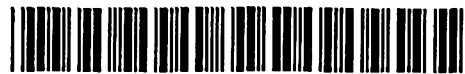
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(54) Title: COMPOSITION FOR TREATING POULTRY LITTER

(54) Titre: COMPOSITION POUR LE TRAITEMENT DES LITTERES POUR VOLAILLE

(57) Abstract

A composition for treating poultry litter, comprising at least one edible surfactant emulsifier, e.g. an ethoxylate produced from castor oil. The composition may also be combined with a mixture of cresols, guaiacol and resorcin. Said composition may be sprayed as a liquid onto the litter to reduce the effects of coccidiosis.

(57) Abrégé

La composition pour le traitement des litières de volaille comporte au moins un agent émulsifiant tensioactif alimentaire, par exemple un éthoxylate obtenu à partir d'huile de ricin. Elle peut également être combinée avec un mélange de crésols, de guaiacol et de résorcin. Cette composition peut être pulvérisée sous forme liquide sur la litière afin de réduire les effets de la coccidiose.

COMPOSITION FOR THE TREATMENT OF POULTRY LITTER

The present invention relates to a composition for the treatment of poultry litter, as well as to a process for the use of this composition, so as to reduce the negative effects of coccidioses in poultry.

5 Coccidioses is an illness particularly of poultry due to
the infection arising from one or several species of coccidiiae or
protozoa of large size of the sporozoa type. These protozoa,
frequent in poultry raising, are ingested by animals in the form of
sporulated oocyst. They thus undergo in the digestive tract of
10 animals a cycle of development and multiplication such that,
starting from several sporulated oocysts, there are excreted in
fecal material millions of non-sporulated oocysts. The non-
sporulated oocysts, which are not infectious, are transformed
during their stay in fecal material after excretion, and hence in
15 the litter, into sporulated infectious oocysts. But only a portion
of the non-sporulated oocysts are transformed into sporulated
oocysts; however, the degree of sporulation depends on the
composition of the fecal materials: moisture content, oxygen
content, pH, etc. If sporulation is intense, the



reinfected animals will perish or will experience very reduced growth and production. If sporulation is moderate, the animals will suffer only a slight infection and thus are immunized.

The object of the present invention therefore is to provide a composition adapted to be incorporated in poultry litter, whose action is based on the reduction of sporulation of the oocysts in said litter and permits practically preventing the pathogenic reinfection of the poultry.

There are already known from GB-A-2 108 389 disinfectant compounds for the treatment of litter which contain as a biocidal agent a alkyl benzene sulfonic acid dissolved in an oily hydrophobic base. Such compositions are adapted to act only on the litter itself, and the disinfectant agent that they contain can be harmful to the animals that ingest it.

However, the present inventor has shown that the incorporation in litter of at least one suitable edible surfactant emulsifier permits obtaining in an altogether unforeseeable manner the results sought by the present invention to reduce significantly the negative effects of coccidioses in poultry, more particularly by decreasing the sporulation of the oocysts which gives rise to serious lesions due to infected litter.

Thus, the composition for the treatment of poultry litter according to the present invention and which achieves the above object, comprises at least one edible surface active emulsifying agent and a mixture of cresols, guaiacol and resorcinol.



The emulsifying agents can be present in the form of water-soluble powder or in liquid form, containing 10 to 100% of said agents; in both cases, the powder or the liquid will be placed in aqueous solution before use. As a support for the powder, can be used for example dextrose, whilst the liquid form is for example in water or propylene-glycol.

The emulsifier or emulgator can be selected preferably from among those which are tolerated by the biological systems and which are mostly hydrophilic in nature, for example esters, polyglycerol esters, and sorbitol esters of fatty acids, such as fatty acid ethoxylates in the form of mono-, di- and triesters of oleic acid, ethoxylates of mono-, di- and triglycerides, ethoxylates of mono- or diesters of sorbitol and fatty acids such as oleic acid or ricinoleic acid, obtained from fatty acids of tallow, soy oil, rape seed oil, castor oil or linseed oil, or coconut oil; and ethoxylated alcohols; etc., the ethoxylates obtained from castor oil being more particularly preferred.

The treatment of litter by the composition according to the invention can take place by a simple spraying on the litter of the liquid composition, in the amount of 20 to 100 ml per m^2 of litter, using one or the other of the mentioned forms after 4 to 5 fold dilution. More particularly, the edible surfactant agents are incorporated in the litter in an amount of 0.2 to 5.0 g per m^2 , preferably 0.5 to 2 g/ m^2 .

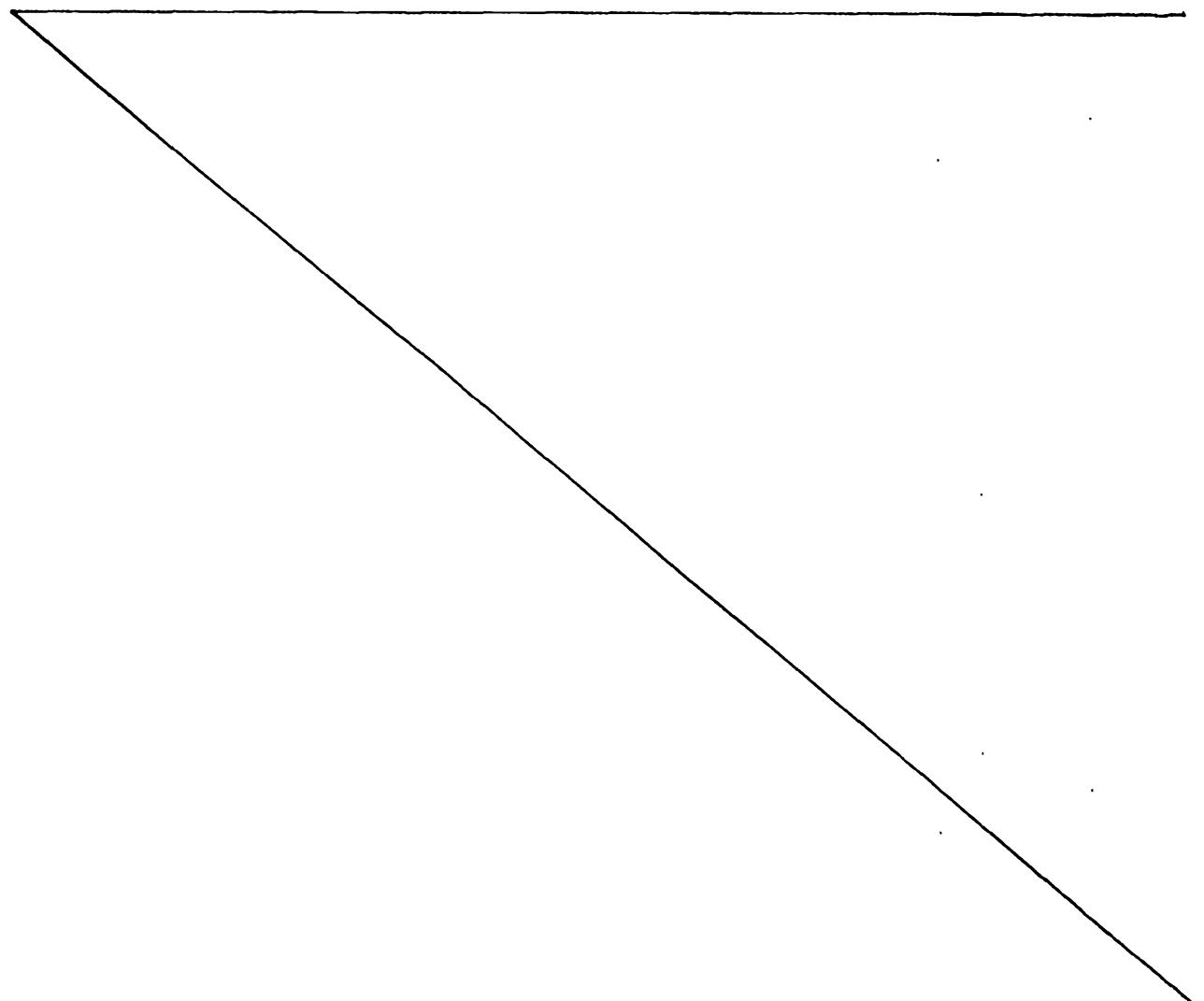
As a modification, the edible surfactant emulsifier can be combined with a mixture of cresols,



guaiacol, and resorcinol, and if desired with one or several of the following components: tannin, thymol, eugenol and anethole.

By way of example, such a composition in the form of a liquid can comprise 2.5 to 20 mg of cresols, 2.5 to 20 mg of guaiacol, 2.5 to 20 mg of resorcinol, and from 200 to 2000 mg of surfactant emulsifier, as well as 0 to 20 mg of tannin, thymol, eugenol and/or anethole.

The present invention will now be illustrated in greater detail with reference to the following example.



Example

(1) Preparation of the compositions

There was prepared by simple mixing of the respective components, the two liquid compositions A and B as follows:

5 A: 2 g of ethoxylated castor oil is dissolved in water (7 ml) and propyleneglycol (1 ml), then the solution is diluted for spraying over one square meter of litter.

10 B: 2 g of ethoxylated castor oil and 1 ml of propyleneglycol, in which have been dissolved 5 mg of guaiacol, 5 mg of resorcinol and 5 mg of m-cresol, are dissolved in 7 ml of water, then the solution is diluted for spraying over one square meter of liter.

(2) Comparative laboratory tests

15 A convention litter for poultry was infected with non-sporulated *E.Tenella* with a population of 5,000,000 oocysts/m², and was separated into three portions. The two first portions were each treated by one of the compositions according to composition A, respectively B, whilst the third was not treated (control).

20 After 24 hours, the oocysts were recovered, water was added and they were maintained at 28°C for 48 hours for sporulation.

The three solutions obtained were then inoculated into three groups of chicks. After 7 days, the animals were sacrificed, and the lesions were observed and



quantified according to the criteria of J. Johnson and W. M. Reid (Experimental Parasitology, 28(1), 30-36) :

0	no macroscopic lesion
1	very slight lesions
5	several lesions
3	numerous lesions
4	very numerous lesions

10 The observations carried out gave the following results, in percentages, relative to the three inoculated solutions obtained from litters treated with A, B and the untreated litter.

Seriousness of Lesions	Untreated Litter (control)	Litter Treated With	
		Comp. A	Comp. B
0	0	0	0
1	0	0	25%
15	2	25%	25%
3	50%	50%	50%
4	50%	25%	0

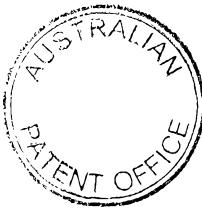
20 It will clearly be seen from the obtained results that the sporulation of the oocysts has been substantially reduced by preliminary treatment of the litters by means of the composition according to the invention designated A and B, and that the addition of phenols (cresol, guaiacol and resorcinol) has improved the effect of the surfactant agent, because the seriousness of the lesions has been reduced.

25 The results therefore confirm clearly that the treatment of poultry litters by the compositions according



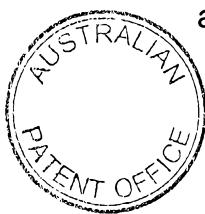
to the invention permits reducing significantly the infective power of the oocysts in said litter, and thereby greatly to contribute to decreasing the negative effects of coccidioses in poultry.

Finally, it is also possible to combine the treatment of the litter by means of the composition according to the invention, with an anti-coccidioses treatment in foodstuffs for poultry, with the conventional coccidiostats.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A composition for the treatment of poultry litter so as to reduce the effects of coccidiosis, including at least one edible surfactant emulsifying agent and a mixture of cresols, guaiacol and resorcinol.
2. A composition according to claim 1 containing from 10 to 100% by weight of surfactant emulsifying agent, in the form of a water-soluble powder or in the form of concentrated liquid.
3. A composition according to any one of claims 1 or 2, in which the surfactant emulsifying agent is an ester.
4. A composition according to claim 3 wherein the ester is a polyglycerol ester.
5. A composition according to claim 3 wherein the ester is a sorbitol ester of fatty acids.
6. A composition according to claim 5 wherein the sorbitol esters of fatty acids are selected from ethoxylates of fatty acids in the form of mono-, di- and triesters of oleic acid, ethoxylates of mono-, di- and triglycerides, ethoxylates of mono- or diesters of sorbitol and fatty acids of oleic acid or castor oil, or ethoxylated alcohols.
7. A composition according to claim 6 wherein oleic acid is extracted from tallow fatty acids, soy oil, rape seed oil, castor oil or linseed oil, or from coconut oil.
8. A composition according to any one of claims 1 to 7 further including one or several of the following compounds: tannin, thymol, eugenol and anethole.



9. A composition according to any one of claims 1 to 8, including 2.5 to 20 mg of cresols, 2.5 to 20 mg of guaiacol, 2.5 to 20 mg of resorcinol, and from 200 to 2000 mg of edible surfactant emulsifier, as well as 0 to 20 mg of tannin, thymol, eugenol and/or anethole.

10. The use of at least one edible surfactant emulsifying agent and a mixture of cresols, guaiacol and resorcinol for the treatment of poultry litter.

11. The use according to claim 10, characterised by the fact that the edible surfactant agents are incorporated in litter in the amount of 0.2 to 5.0 g per m², preferably 0.5 to 2 g/m².

12. A process for the treatment of poultry litter so as to reduce the effects of coccidiosis, which includes the step of spraying over the litter from 20 to 100 ml/m² of litter, the composition according to any one of claims 1 to 9, in liquid form.

13. A composition according to any one of claims 1 to 9 wherein the surfactant emulsifying agent is surface active.

14. A composition for the treatment of poultry litter as substantially hereinbefore described in the example.

DATED this 9th day of February, 2000
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