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(54) Titre : COMPOSITION POUR LE TRAITEMENT DES LITIERES POUR VOLAILLE  
(54) Title: COMPOSITION FOR THE TREATMENT OF POULTRY LITTER

(57) **Abrégé/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.



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<b>(54) Title:</b> COMPOSITION FOR TREATING POULTRY LITTER <b>(54) Titre:</b> COMPOSITION POUR LE TRAITEMENT DES LITIÈRES POUR VOLAILLE <b>(57) Abstract</b> <p>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.</p> <b>(57) Abrégé</b> <p>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 résorcine. Cette composition peut être pulvérisée sous forme liquide sur la litière afin de réduire les effets de la coccidiose.</p>		

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**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 coccidiosis in poultry.

5           Coccidiosis is an illness particularly of poultry due to the infection arising from one or several species of coccidia 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

reinfecting 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 coccidiosis in poultry, more particularly by decreasing the sporulation of the oocysts which gives rise to serious lesions due to infected litter.

Thus, the present invention provides a composition for treating poultry litter in order to reduce the effects of coccidiosis, characterised by the fact that it comprises at least one emulsifying active alimentary agent and a mixture of cresol, guaiacol and resorcinol.

The present invention also relates to the use of at least one emulsifying surface active alimentary agent for the treatment of poultry litter to reduce the effects of coccidiosis.



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.

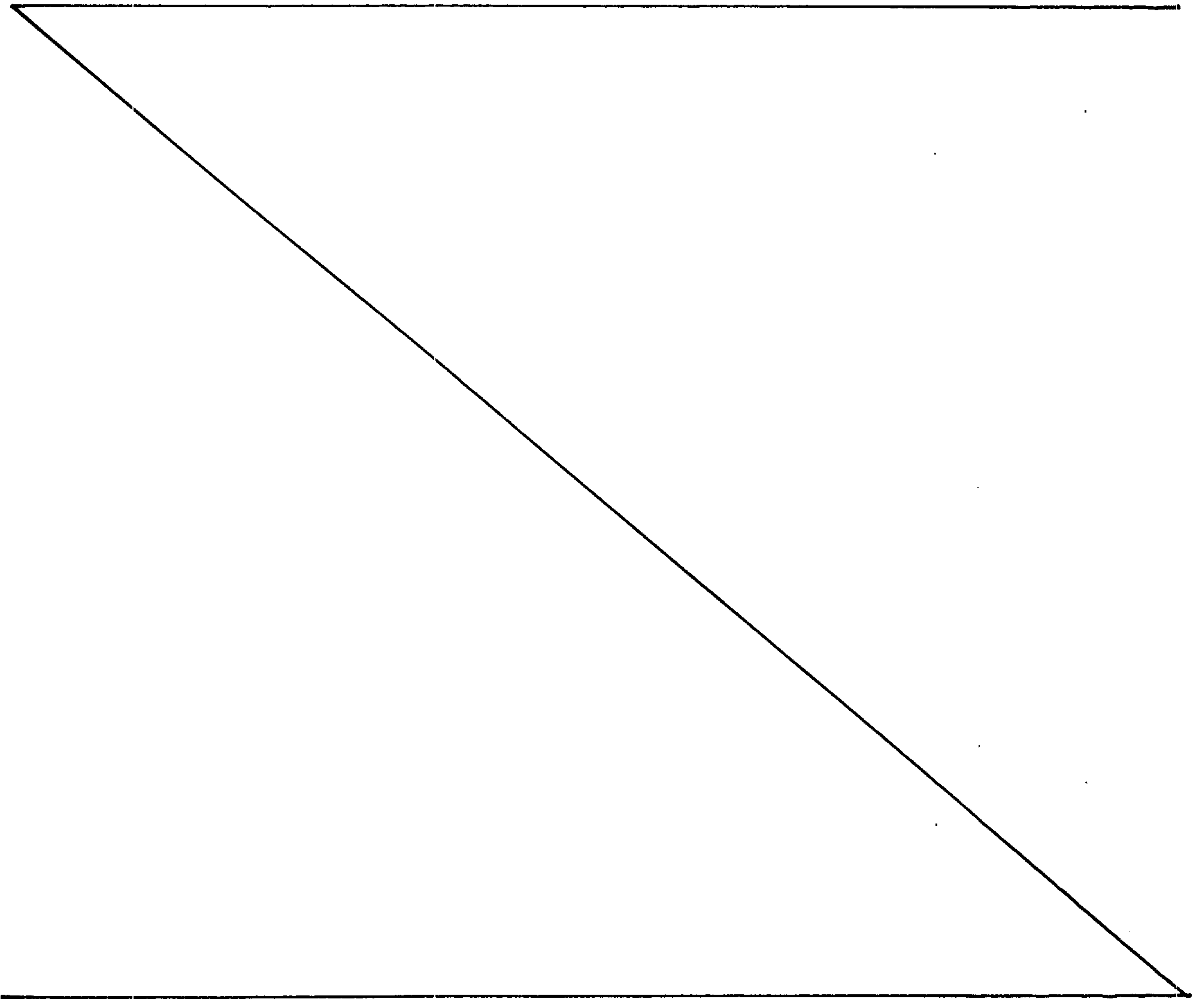
The treatment of litter by the composition according to the invention can take place by a simple spraying on the litter of the liquid composition, in the amount of 20 to 100 ml per m<sup>2</sup> of litter, using one or the other of the mentioned forms after 4 to 5 fold dilution. More particularly, the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

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.



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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/m<sup>2</sup>, 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

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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 2 several lesions  
3 numerous lesions  
4 very numerous lesions

The observations carried out gave the following results,  
in percentages, relative to the three inoculated solutions obtained  
10 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	0	25%	25%
	3	50%	50%	50%
	4	50%	25%	0

It will clearly be seen from the obtained results that  
the sporulation of the oocysts has been substantially reduced by  
20 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



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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 coccidiosis in poultry.

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

## CLAIMS

1. Composition for treating poultry litter in order to reduce the effects of coccidiosis, characterised by the fact that it comprises at least one surface emulsifying active alimentary agent and a mixture of cresol, guaiacol and resorcline.

2. Composition according to claim 1, containing between 10 and 100% of surface active agent, as a water soluble powder or in concentrated liquid form.

10 3. Composition according to claim 1 or 2, within which the emulsifying agent is chosen amongst the esters, polyglyceric esters and sorbitol esters of fatty acids obtained starting from fatty acids of tallow, soya bean oil, rape-seed oil, castor oil, linseed oil, or coconut oil; and ethoxylated alcohol.

4. Composition according to claim 3, wherein the sorbitol esters of fatty acids are selected from the group consisting of the ethoxylates of fatty acids in form of mono-, di and triesters of oleic acid, the ethoxylates of mono-, di- and triglycerides and the ethoxylates of mono- or diesters of sorbitol and of fatty acids of oleic acid or ricinoleic acid.

20 5. Composition according to any one of claims 1 to 4, further comprising one or more of the following components: tannin, thymol, eugenol and anethol.

6. Composition according to claim 5, in form of a liquid preparation, comprising 2,5 to 20mg of cresols, 2,5 to 20mg of guaiacol, 2,5 to 20mg resorcline, 200 to 2000mg of surface emulsifying active alimentary agent and 0 to 20 mg of tannin, thymol, eugenol and/or anethole.

7. Use of at least one emulsifying surface active alimentary agent for the treatment of poultry litter to reduce the effects of coccidiosis.

8. Use according to claim 7, characterised by the fact that the at least one emulsifying surface active alimentary agent is incorporated into the litter by 0,2 to 5,0 g per m<sup>2</sup>.

9. Use according to claim 8, wherein the at least one emulsifying surface active alimentary agent is incorporated by 0,5 to 2,0 g/m<sup>2</sup>.

10. Process for treating poultry litter in order to reduce the effects of coccidiosis, characterised by the fact that 20 to 100 ml/m<sup>2</sup> of litter of a composition according to any one of claims 1 to 6 are pulverised in liquid form on that litter.