

Research Note

Some Observations on The Sporulation of Oocysts of Genus *Eimeria*

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Abstract

Some observations on the sporulation of oocysts of genus *Eimeria* was studied. The per cent sporulation of oocysts was significantly higher in aliquots containing 1.5 per cent intestinal contents supplemented with 7 % sodium hypochlorite 72 hours after incubation. It was observed that sporulation medium containing the intestinal contents without sodium hypochlorite accompanied by the growth of micro-organism, particularly filamentous fungi and yeast in spite of the presence of 2.5% potassium dichromate solution. No microbial growth was observed when potassium dichromate was supplemented with 7 % sodium hypochlorite. It may be concluded that the sporulation of coccidial oocysts should be conducted in the medium containing intestinal contents in 2.5 per cent potassium dichromate solution supplemented with 7% sodium hypochlorite to get the maximum yield of sporulated oocysts.

Key words: *Eimeria*, sporulation

Materials and Methods

Collection and Examination of Guts

Chicken guts suspected to be naturally infected with coccidia (mixed species) were collected from poultry shops of Faisalabad city

The caeca and intestines were opened and contents were examined (Soulsby, 1982). The contents of positive guts were collected and stored in 2.5% potassium dichromate solution. Oocysts from positive contents were separated, concentrated by floatation technique (Hayat and Akhtar, 1999) and stored in 2.5% potassium dichromate solution for further use. The number of oocysts were calculated by McMaster counting technique (Gorden and Whitlock, 1939) and adjusted to 1.14×10^3 oocysts per mL.

Sporulation of coccidial oocysts

Sporulation of oocysts was performed in 2.5% potassium dichromate solution containing 0%, 1.0%, 1.5% and 2.0% intestinal contents in separate aliquots with and without 7 % sodium hypochlorite (Hayat and Akhtar, 1999) . The aliquots were provided the optimum temperature and humidity (Ryley *et al.*, 1976). Observations were recorded after every 12 hours upto 84 hours. The sporulations of the oocysts were confirmed by taking a drop from each aliquot and examine the sporocysts under the microscope. The oocysts were deemed to be sporulated when four sporocysts were clearly discernible. At least hundred oocysts were examined in each aliquot, which was regarded as sufficient number for statistical analysis (Graat *et al.*, 1994). The number of oocysts sporulated were recorded.

Results and Discussion

Per cent sporulated oocysts at different concentrations of intestinal contents are presented in table 1

The per cent sporulation was higher in aliquots containing the intestinal contents as compared to the aliquots having no intestinal contents. Maximum sporulation was achieved after 72 and 84 hours at 1.5 per cent intestinal contents and sodium hypochlorite. There was no difference in per cent oocysts sporulation at 1.5 and 2.0 per cent intestinal contents. No significance difference ($P>0.01$) was found at 72 and 84 hours.

In the present studies, it was observed that the sporulation medium containing the intestinal contents without sodium hypochlorite accompanied by the growth of micro-organism, particularly filamentous fungi and yeast in spite of the presence of 2.5% potassium dichromate solution. No microbial growth was observed when potassium dichromate was supplemented with 7 % sodium hypochlorite. It was assumed that the low percent oocyst sporulation in a medium without sodium hypochlorite was due to microbial growth, which may hinder the sporulation process.

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From the present study, it may be concluded that the sporulation of coccidial oocysts should be conducted in the medium containing intestinal contents in 2.5 per cent potassium dichromate solution supplemented with 7% sodium hypochlorite to get the maximum yield of sporulated oocysts.

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Table 1: Sporulated oocysts at different concentration of intestinal contents.

Time (Hours) after incubation	Intestinal contents percentage V/V with sodium hypochlorite				Intestinal contents percentage V/V without sodium hypochlorite			
	0%	1.0%	1.5%	2.0%	0%	1.0%	1.5%	2.0%
12	0	0	1	1	0	0	0	0
24	1	2	3	3	0	1	2	3
36	5	13	21	28	4	11	18	24
48	13	35	56	50	11	30	48	43
60	20	48	76	70	17	41	65	60
72	50	65	80	78	43	56	68	66
84	53	71	80	80	45	62	69	68

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