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Herbal therapy by using plants with antioxidant activity for control of coccidiosis in broiler chickens

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Coccidiosis is regarded as the parasitic disease that has the greatest economic impact on poultry production specially in the case of broilers chickens. Chemotherapy for coccidiosis is very costly, for example, In the UK, it is estimated that coccidiosis costs the poultry industry in excess of £40 million annually. If the control of the coccidian parasite could be made more economical, these savings could be passed on to the consumer. In addition there are some concerns about the side effects of drug residues in poultry products in common preventive procedure with coccidiostatic agents, thus the use of plant products that function by mechanisms other than those of chemotherapeutics, with the additional advantage of a natural origin will be considerable. Antioxidant compounds could hold promise for the control of *Eimeria* infections due to the association of coccidial infection with lipid peroxidation of the intestinal mucosa. In a study Four plan t extracts with antioxidant activity were screened for their anticoccidial activity in vivo with toltrazuril as the positive control. *Combretum woodii* (160 mg/kg) proved to be extremely toxic to the birds, while treatment with *Tulbaghia violacea* (35 mg/kg), *Vitis vinifera* (75 mg/kg) and *Artemisia afra* (150 mg/kg) resulted in feed conversion ratios similar to toltrazuril, and higher than the untreated control. All the plant extracts showed adequate antioxidant activity, with toltrazuril being more effective than the plant extracts. *T. violacea* also significantly decreased the oocyst production in the birds. From this study we conclude that antioxidant-rich plant extracts have potential benefits in treating coccidial infections.

Keywords: Anticoccidial agent, Herbal therapy, Artemisia afra, Vitis vinifera Tulbaghia violacea, Combretum woodii.

Comparative study of bioavailability of closantel bolus and suspension dosage forms in sheep

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Bioavailability study is a scientific and practical method to evaluate and compare the quality of different pharmaceutical products. The aim of this study was to compare the pharmacokinetic parameters obtained from bioavailability study of suspension and bolus formulations of closantel in sheep. Twenty eight lambs, 6 to 8 months old weighing around 50 kg, were randomly divided into two groups. Each sheep in the first group received 500 mg bolus of closantel and in the second group received 10 mg/kg suspension of closantel. Blood samples were taken at 0, 4, 8, 12, 16, 20, 24, 32, 48 and 72 hours after administration of the drugs and then the concentration of closantel in plasma was measured by an HPLC method using fluorescence detector. To compare the bioavailability of two dosage forms, different pharmacokinetic parameters including Cmax, Tmax and AUC were calculated by Drug Kinetics software and then analyzed with t-student and F tests. Pharmacokinetic parameters for suspension were AUC = 2931±648.2, C max = 62.21±7.74, Tmax = 23.14±4.2 and for bolus they were AUC = 2049.1±421.2, C max = 56.38±14.28, Tmax = 22.93±1.83. While there was significant difference between AUC of closantel suspension and bolus formulations, we did not find significant differences between C max and Tmax of suspension and bolus dosage forms. It seems that two dosage forms of closantel may show different bioavailability in some animals such as sheep.

Keywords: Closantel, bioavailability, suspension, bolus, HPLC