Systematic Review


ABSTRACT

While some *Ehrlichia* species, such as *E. ruminantium* and *E. minasensis*, are not popular even among veterinarians, they can infect cattle. The current study aimed to review studies on *Ehrlichia* spp. to evaluate its worldwide molecular prevalence, given the lack of information about bovine ehrlichiosis and the lack of previous systematic reviews and meta-analyses on this subject. In order to determine the molecular prevalence of *Ehrlichia* spp. in cattle, a systematic review of the literature was conducted in three databases. A meta-analysis with a random-effects model was performed to calculate the pooled prevalence with 95% confidence intervals (95% CI) and measures of heterogeneity were reported. Subgroup analyses were performed in terms of *Ehrlichia* species, country, and regions. The literature search yielded 1051 papers until August 1, 2019, with 71 studies entirely eligible for review. The pooled molecular prevalence for *Ehrlichia* at the individual level (N = 6232) was 2.3% (95% CI: 1.7-2.9%) with the highest value of 82.4%. Studies identified the highest pooled molecular prevalence of 6.6% (95% CI: 0.6-12.7%) for *E. canis*, followed by *E. ruminantium* (n = 4695, 75.33%) 52 studies and *E. chaffeensis* with 1.5% (95% CI: 0.0-0.3%). Moreover, the obtained result was indicative of only one study addressing *E. minasensis*. As the findings suggested, heartwater (*E. ruminantium* infection) is a notifiable disease of domestic and wild ruminants, recorded by the World Organization for Animal Health. There is a possible risk of endemic heartwater in the Americas due to the climatic features. Furthermore, *E. minasensis*, *E. chaffeensis*, and *E. canis* were observed in cattle although the two last species could be a molecular misidentification with regard to their phylogenetic relationships with *E. minasensis*. 
Keywords: Bacteria, Bovine, Ehrlichia, Systematic review, Tick-borne

Review

Uses of Immunoglobulins as an Antimicrobials Alternative in Veterinary Medicine.

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ABSTRACT
As a result of increasing the resistance to antimicrobials in the field of veterinary medicine that reflects on human health, there is a great demand to use some drug alternatives. The application of avian immunoglobulins (IgY) is regarded as an important alternative strategy. The IgYs have been produced by several techniques and applied for animals using different methods. In addition, egg yolk IgYs have many advantages over blood type ones. There are many uses of IgYs in veterinary medicine. They have been used for the prophylaxis and treatment of different infections especially the enteric ones in cattle, pigs, rabbits, dogs, rats, mice, and fish species. Moreover, several studies showed the importance of IgY for competing for the *in vivo* enteric pathogens in poultry and the *in vitro* foodborne pathogen. Therefore, it is important to put a spotlight on applications of egg yolk immunoglobulins IgY in veterinary medicine to overcome the problems of antimicrobials’ resistance as well as the tissue residues that adversely affect human health.

**Keywords:** Advantages, Animals, Poultry, Production, Yolk antibodies
ABSTRACT

This Negative energy balance (NEB) inevitably occurs in periparturient dairy cows. Its consequences are related to reduced cows’ performances. Most studies concerning the NEB are performed in dairy cows of large-scale farms, particularly raised under non-tropical climate. The current study aimed to investigate the changes in body condition score, serum biochemical parameters, and liver triacylglycerol (TAG) accumulation in periparturient Holstein Friesian dairy cows raised by a small-holder farm. In this regard, 10 healthy pregnant dairy cows in a small-holder farm were recruited for the study. At 4 weeks before and 1, 2, 4, and 8 weeks after calving, blood samples were collected for determination of glucose, non-esterified fatty acid (NEFA), β-hydroxybutyrate (BHBA), and insulin-like growth factor-1 (IGF-I) concentrations. BCS was evaluated at 4 weeks before and 2 weeks after calving. Liver samples were collected 4 weeks before and 2 weeks after calving to determine TAG concentration. Results revealed that serum NEFA and liver TAG concentration were elevated postpartum. Serum BHBA concentrations increased postpartum and the concentration indicated that dairy cows entered NEB condition as type I ketosis with a longer period. Serum IGF-I concentrations and BCS did not differ between before and after calving. In conclusion, dairy cows raised under small-holder tropical conditions suffered from serious NEB, though the cows had low milk production, as compared with the commercial non-tropical condition.

Keywords: Blood biochemistry, Dairy cow, Liver triacylglycerol, Negative energy balance, Small-holder farm
The aim of the present research was to determine the effect of both the gender of the new-born calf and the pre-partum vaccination status of the dam (ScourGuard-4K) on the chemical composition and some biological parameters of the colostrum. Blood serum was collected from four groups of pregnant dams (four animals in each group) during the dry period. Results of the current study showed that colostrum of dams that gave birth to male fetus had a richer content of IgG and IGF-1 levels and a higher percentage of total solids, solids-not-fat, and lactose. Additionally, vaccination improved the same colostrum immunoglobuline G (IgG) were calculated in the maternal blood serum at the assigned periods. ScourGuard-4K colostrum components were the highest at the birth time, then it decreased gradually up to 72 hours to reach the normal composition of milk.
Conclusions

Blood cockle, commonly known as a filter feeder, is found in many Surabaya traditional markets. However, it potentially accumulates pollutant substances, both heavy metal or microbial, so that improper handling and processing can cause pathogenic bacteria contamination. The present study aimed to investigate the contamination of bacteria in blood cockle satay (Anadara granosa) sold at Surabaya traditional market. The current study used a descriptive observational research design with a quantitative approach. A total of 11 samples were employed using cluster sampling. The obtained data were compared with those of Bergey’s manual of determinative bacteriology and Indonesian national standard. Based on the obtained results, concluded that the blood cockle satay samples sold at Surabaya traditional market (Indonesia) and positive indole. The Most Probable Number test for six samples indicated a value of <3.0 mpn/gr for one sample, 3.0 mpn/gr for two samples, and 3.6 mpn/gr for three samples. It can be determined that the microbial contamination in the blood cockle satay samples is considered safe for consumption.
Stenotrophomonas maltophilia. The antimicrobial susceptibility test illustrated the presence of multidrug-resistant and pan-drug-resistant isolates. The study revealed that 33.3% of isolates were sensitive to vancomycin, while 16.7% were sensitive to erythromycin and doxycycline. Moreover, 62.5% of isolates were sensitive to penicillin, piperacillin-tazobactam, and lomefloxacin. Furthermore, 25% of isolates were susceptible to Piperacillin-tazobactam, 25% to lomefloxacin; however, 75% were resistant to ampicillin-sulbactam, piperacillin-tazobactam, and cefoperazone.

In conclusion, resistance monitoring data and predisposing factors to antibiotic-resistant bacteria in equine in Egypt were identified. The misuse and overuse of antibiotics have led to the evolution of antibiotic-resistant bacteria. The predisposing factors may be attributed to insufficient veterinary healthcare, monitoring, and regulatory services, in addition to the intervention of animal health service providers, and/ or farmers' lack of knowledge about drugs. The misuse and overuse of antibiotics have led to the evolution of antibiotic-resistant bacteria. The predisposing factors may be attributed to insufficient veterinary healthcare, monitoring, and regulatory services, in addition to the intervention of animal health service providers, and/ or farmers' lack of knowledge about drugs. The misuse and overuse of antibiotics have led to the evolution of antibiotic-resistant bacteria. The predisposing factors may be attributed to insufficient veterinary healthcare, monitoring, and regulatory services, in addition to the intervention of animal health service providers, and/ or farmers' lack of knowledge about drugs. The misuse and overuse of antibiotics have led to the evolution of antibiotic-resistant bacteria. The predisposing factors may be attributed to insufficient veterinary healthcare, monitoring, and regulatory services, in addition to the intervention of animal health service providers, and/ or farmers' lack of knowledge about drugs.

**Keywords:** antibiotic-resistant bacteria, Stenotrophomonas maltophilia, Pseudomonas aeruginosa, Enterococcus faecalis, Klebsiella pneumoniae.
**ABSTRACT**

Garlic and black seed have been used as natural feed additives in rabbit feeding as a prophylaxis and treatment for coccidiosis. The present study investigated the prophylactic and anticoccidial effects of garlic and black seed extracts on the Eimeria magna oocysts count in rabbit intestinal villi.

The results showed that there were no significant differences in erythrocytes counts in all experimental groups. Both garlic and black seed extract had beneficial effects on improving the lesions grossly and microscopically. The results obtained in the present study proved that garlic pretreatment had a more beneficial effect on prophylaxis and treatment for coccidiosis than garlic treatment and both had better effect on prophylaxis and treatment for coccidiosis than garlic treatment and black seed extract. Therefore, it is recommended to use garlic as a natural feed additive in rabbit feed as a prophylaxis and treatment for coccidiosis.

**Keywords:** Garlic, Black seed, Eimeria magna, Rabbit, Coccidiosis, Prophylaxis, Anticoccidial effects.

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**REFERENCES**


Identification of Somatic Antigens of Adult Fasciola gigantica Isolated from Bali Cattle.

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ABSTRACT

In most tropical countries, such as Indonesia, fasciolosis is generally caused by Fasciola gigantica known as tropical liver fluke. However, most fasciolosis serodiagnostic tests have been developed solely for diagnosing fasciolosis caused by Fasciola hepatica (non-tropical liver fluke), and very few have been specifically designed for F. gigantica. The aim of this study was to determine the profile of antigenic proteins from the somatic extract of F. gigantica isolated from Bali cattle (Bos javanicus). The liver flukes were collected from a slaughtering house in Mataram, Indonesia. The somatic extracts were prepared by homogenizing in buffers containing 0.05 M NaCl, 0.02 M PMSF, and 0.05% Triton X-100. The characterization of the somatic extract proteins was performed using one-dimension gel electrophoresis and followed by Western blotting to determine the profile of its antigenic proteins. There were 14 bands of the somatic extracts with an estimated molecular weight ranging from 8 to 105 kDa shown on the gel electrophoresis. The results of the Western blot show that there were five prominent protein bands. Three out of five prominent antigenic proteins with molecular weights of 8, 27, and 33 kDa are promising to enrich the existence of antigens that have immunodiagnostic value for fasciolosis. Therefore, further studies are required to examine more deeply the potency of those three antigenic somatic proteins of F. gigantica.

Keywords: Bali cattle, F. gigantica, Immunodiagnostic, Somatic extract, Western Blot