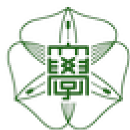
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ANALYSIS OF GENETIC DIVERSITY OF THE PIROPLASM SURFACE PROTEIN, P30, GENE OF *BABESIA EQUI* AND DEVELOPMENT OF SERODIAGNOSIS FOR EQUINE PIROPLASMOSIS

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Babesia equi and *Babesia caballi* are tick-borne intraerythrocytic protozoa which give rise to diseases in *Equidae* generally called piroplasmosis. The diseases are characterized by fever and severe anaemia. There is a need to identify new antigen(s) to be used as target molecules to improve the existing diagnostic assays. In this study, efforts have been made to develop serodiagnostic tests targeting piroplasm immunodominant proteins p30 (30kDa surface piroplasm protein) and p37 (homology with ribosomal protein of *Escherichia coli*) of *B. equi*. The gene encoding p30 was cloned by polymerase chain reaction (PCR). A pair of oligonucleotide primers, designed from the *B. equi* merozoite antigen-1 (EMA-1) gene were used to amplify the p30 gene from genomic DNA purified from three *B. equi* stocks from the USA, Russia and South Africa. Restriction fragment length polymorphism (RFLP) analysis of their PCR products and DNA sequences showed that p30 had genetic diversity which in turn suggested its antigenic diversity. P30 and p37 of *B. equi* expressed in *E. coli* were purified and used for enzyme-linked immunosorbent assay. The recombinant p30 and p37 (rp30 and rp37) were recognized by antibodies to *B. equi* in naturally and experimentally infected horse sera. Anti-rp30 and anti-rp37 rabbit sera did not react with *B. caballi* piroplasm proteins in Western blot analysis. This suggested that these recombinant proteins could be used as immunological reagents for the differential diagnosis of equine piroplasmosis. The suitability of these recombinant proteins to be used as antigens in ELISA for the diagnosis of *B. equi* was evaluated. Nonspecific reactions observed against rp30 suggest the need for frther evaluation of this recombinant product to improve the sensitivity and specifucity of ELISA.