

## Genetic variability among goat breeds using biochemical markers.

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The aim of this study was to determine biochemical genetic markers of five goat breeds' germplasm of Libyan local goats (Mahali), Shami (Syria), Beetal (India), Gulabi (Pakistan) and Sahel (Chad) by using Sodium Dodecyl Sulphate–Polyacrylamide Gel electrophoresis (SDS-PAGE) and two isoenzymes systems (Peroxidase, Prx and Esterase, Es). SDS-PAGE analysis revealed 18 protein bands with different molecular weights, ranged from 115 to 14 kDa (kilodaltons). These bands include 5 polymorphic, 9 monomorphic, and 4 unique (Gulabi has protein bands of 96.0 and 92.0 kDa, Shami has band of 14 kDa. and Beetal has band of 36.5 kDa). On the other hand, Polyacrylamide gel electrophoresis analysis showed six peroxidase and six esterase isozymes. These six bands suggest that there are six alleles or loci conferring peroxidase and esterase isozymes in the five goat breeds germplasm studied. The results show a variation in biochemical activity levels, as peroxidase isozyme revealed higher percentage of polymorphism (68.75%) than esterase isozyme (58.33%) and SDS-PAGE (28.75 %). It can be concluded that SDS-PAGE peroxidase and Esterase isozyme analysis which are relatively inexpensive techniques, less exposure to toxic chemicals, thus can help in comparing many enzymes to get data about different genetic loci. They have proved to be good methods for studying genetic variation in animal compared to other methods.

**Keywords: biochemical markers, genetic variability, SDS-PAGE. isoenzymes.**