

B-31: Comparison of Q - banded karyotypes of cattle, sheep, and goat

A Gunawardena

(Dept of Animal Science, Faculty of Agric, Univ of Ruhuna, Kamburupitiya)

According to the taxonomic criteria, the 3 main domestic species of the Bovidae family, viz cattle, sheep and goats belong to 2 different sub families: Bovinae and Caprinae. The karyotypes of these 3 species have been studied by many, using various banding techniques. The objective of this study was to compare the karyotypes of these 3 species by Q-banding technique.

Chromosome preparations were made by heparinized peripheral blood, cultured in RPMI 1640 medium in the presence of foetal calf serum and Pokeweed nitrogen followed by incubation at 37.8°C for 4 days. Depending on the species Brdu (5 bromo-2-deoxyuridine) was added for 5-7 h before harvesting. Metaphase chromosomes were prepared by air-drying fixed cells on glass microscopic slides using a micropipette. Chromosome preparations were allowed to age for 1-2 days at room temperature and then stained with 0.005% Quinacrine mustard dissolved in double distilled water for 30-40 sec. After staining, photography was carried out as quickly as possible. The chromosome of the 3 species were classified and numbered according to ISCANDA (1989).

The Q-banding patterns appear to be very similar, with only minor differences existing between chromosome 9 and the sex chromosomes of cattle and the same chromosomes in the domestic sheep and the goat.