

Caprine arthritis encephalitis in Indian goats

Caprine arthritis encephalitis (CAE) is a viral disease of goats, characterized by encephalitis in kids and arthritis in adult goats. It is caused by caprine arthritis encephalitis virus (CAEV), a retrovirus of subfamily Lentivirinae¹. Other members of this subfamily are – maedivisna virus (MVV) of sheep, equine infectious anaemia virus (EIAV) and human immunodeficiency virus (HIV). CAE has not so far been reported from this country.

1134 goat sera were screened to detect antibodies against CAEV antigen by agar gel immuno-diffusion and enzyme-linked immunosorbent tests. About 18% serum samples were found to be positive, indicating a prevalence rate of 0.179 for CAE in the target



Figure 1. Lentiviral arthritis: enlargement of left carpal joint.

population. Thirteen cases of nonsuppurative arthritis, characterized by enlargement of carpal joints containing 15–50 ml clear to turbid yellow synovial fluid with high cell counts (15,000–1,00,000 cell/ml) predominantly of mononuclear cells were also recorded on clinical, gross and histological examination (Figure 1). Cytoplasmic antigen of CAEV could be demonstrated in the cells of synovial fluid by indirect immunofluorescent and immunoperoxidase tests. The arthritis was classified into exudative, proliferative and degenerative types. Proliferation of synovial membrane forming villus projections, massive infiltration of mononuclear cells and development of germinal centres around blood vessels and in the parenchyma of the tissues; necrosis of the joint structures with fibrosis and calcification were the salient histological features.

The CAEV was isolated from synovial membranes of 2 seropositive goats. The new isolate CAEV_{bp} (named after Bhopal) exhibited genetic and phenotypic similarities with CAEV_{co} (American isolate). The isolate induced multinucleated giant cell formation in goat synovial membrane (GSM) monolayers, unable to replicate in sheep choroid plexus cells, and its amplification of 512 base pairs from *gag* sequences on PCR identified the new isolate as a virus of caprine origin.

These findings are in conformity with those of previous workers^{2,3}. The virus-specific protein p25 and gp135 were also precipitated in macrophage and GSM cultures by immunoprecipitation. Ultrastructurally, different stages of virion formation and maturation were observed in GSM cells. These observations confirm the existence of CAE for the first time in Indian goats.

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In vitro flowering and back crossing of Brassica intergeneric hybrids

Intergeneric hybridization between the related wild species and cultivated brassicas offers vast scope for the improvement of crop brassicas, especially in providing cytoplasmic male sterile (CMS) lines. When hybrids are obtained in culture by rescuing embryos and transplanting in soil is difficult, it would be advantageous to induce flowering *in vitro* because of the following reasons – i) Meiotic analysis is possible

to determine homology of different species/genera; ii) Inheritance of floral/fruit attributes can be determined and iii) Backcrossing of hybrids can be attempted *in vitro* to obtain backcross progenies quickly if pollen of male parent is always available. It has recently been suggested to advance segregating population by selfing *in vitro*¹. Flower initiation and development is known to be promoted by environmental condi-

tions such as pH, day length and different growth regulators². Among the interspecific or intergeneric hybrids of *Brassica*, *in vitro* flowering has been obtained only in hybrids between *Enarthrocarpus lyratus* and crop brassicas³. There are no reports of *in vitro* backcrossing in wide hybrids of crop plants. Here we report *in vitro* flowering of two intergeneric *Brassica* hybrids (*Erucastrum abyssinicum* × *Brassica*