

ABSTRACT

Attempts at wide hybridisation involving species of *Atylosia*, *Eriosema* and *Cajanus* cultivar UW26 resulted in varying degrees of success. Using 3000ppm of E - Amino Caproic Acid (EACA), *C.cajan* crosses with *A.platycarpa* and *E.pSORALIoides* yielded 2% and 1% podset all which contained shrivelled seeds. Attempts to rescue embryos from such seeds were unsuccessful. Mixed pollination with *E.pSORALIoides* in *A.platycarpa* and *C.cajan* crosses produced 1.3% and 2% podset for EACA and control treatments respectively, and pollinations at anthesis involving *A.platycarpa* and *C.cajan* also yielded 4.3% podset. All seedlings originating from these two crosses appeared in doubles and were found to be non zygotic.

Studies on the relationship between species of *Cajanus*, *Atylosia* and *Eriosema* showed affinity between *Atylosia* and *Cajanus*. *Eriosema psoralioides* was however found to be neither related to *Atylosia* nor *Cajanus*.

Studies on podsetting in pigeon pea showed that pigeon pea is protandrous. Pollen germination was delayed until late anthesis even though the stigma and anthers were viable. Foreign pollen was more efficient than self pollen in pollen tube growth and the number of seeds formed. Tripping was found to be conditional for podsetting, and flowers which did not receive such treatment abscised. Tripping was effected by either environmental conditions or insect pollinators, but the effect of the former was

inefficient since it was inadequate to cause sufficient podsetting.

Podsetting showed high correlation with relative humidity, light duration and insect activity.

Occasionally, flowers failed to set pods when tripped. Such failures could be due to partial self incompatibility.