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Status and role of photoperiodic, maturity and growth habit genes in India

*Rachana Tripathi**, Indian Institute of Soybean Research, Madhya Pradesh, India
Sanjay Gupta, Indian Institute of Soybean Research, Madhya Pradesh, India
Giriraj Kumawat, Indian Institute of Soybean Research, Madhya Pradesh, India
Gyanesh Kumar Satpute, Indian Institute of Soybean Research, Madhya Pradesh, India

Major photoperiodic and maturity (*E1, E3, E2, E4*), long juvenile (*E9 & J*) and growth habit (*Dt1* and *Dt2*) genes have played an important role in the adaptation of photosensitive soybean crop to different latitudes. All of these genes have been characterized and their allelic combinations have been found to confer latitudinal adaptations. Soybean is an important oilseed crop of India (6–35 □ N) but the allelic status and role of these genes is not known for India. Loss of function and hypoactive alleles of these genes are known to confer photo insensitivity to long days and early maturity. Early maturity has helped to adapt soybean to short growing season of India. Through phenotyping under incandescent long day (ILD) we had identified six photo insensitive accessions and found one of these insensitive accessions (EC 390977) with *e3/e4*genotype. Genetic and co-segregation studies using this accession identified major Indian soybean (JS 335, JS 95-60, JS 93-05, JS 97-52, and NRC 37) as *E3/E4*. Indian soybean varieties and germplasm accessions were genotyped for *E1, E2, E3, E4* and *Dt1* genes using gene specific markers and role of these genes in conferring latitudinal adaptation has been discussed.