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Scientists at IBDS found that growth and development related transcripts of *Primula sikkimensis* were expressed below ambient conditions

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Researchers from Imphal based Institute of Bioresources and Sustainable Development (IBSD) and National Centre for Biological Sciences (NCBS), Bengaluru found that transcripts involved in growth and development of high altitude plant *Primula sikkimensis* were mostly up-regulated in below ambient conditions, i.e., immediate temperature, humidity and air pressure conditions.

A large number of significantly differentially expressed genes (DEGs) were identified between below ambient versus ambient (109), and above ambient versus ambient (85) conditions. Transcripts involved in signalling, defence, and membrane transport were mostly up-regulated in above ambient condition. Pathway analysis revealed that most of the genes involved in metabolic processes, secondary metabolism, and flavonoid biosynthesis were differentially expressed in below ambient conditions, whereas most of the genes involved in photosynthesis and plant hormone signalling were differentially expressed in above ambient conditions.

The team studied the effect of abiotic stress on the transcriptome of high altitude plant *P. sikkimensis*, locally known as Himalayan cowslip or Sikkim cowslip and the plant was grown at different altitudinal growth conditions. The genes and pathways identified provide a genetic resource for understanding the temperature stress (both the hot and cold stress) tolerance mechanism of *P. sikkimensis* in their natural environment. The results of the study were published in journal *BMC Genomics*.

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