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Bioprocessing of pharmaceutical alkaloid

Ganapathy Sivakumar

Arkansas State University, USA

Abstract

Bioactive plant-based alkaloids can be used as pharmaceuticals directly or after chemical modification. Colchicine is the one of the therapeutic tricyclic natural alkaloids, which is commercially extracted from *Gloriosasuperba*.The pharmaceutical demand for natural colchicine is growing, because it is an effective gout treatment and is under development as a cancer chemotherapeutic agent. Thedemand for colchicine, however, is unlikely to be met through conventional agricultural production. The bioprocess of colchicine production in a bioreactoris relatively simple and safe when compared to field cultivation. Moreover, this approach will address limitations that perpetuate the current low production of *G. superba* and provide an alternate *in vitro* industrial technology for natural colchicine. This technology could offer high quality colchicine that could have a positive impact on the pharmaceutical industries and environment.

Biography

Dr. Sivakumar earned his Ph.D in 2001 and completed postdoctoral trainings in Italy. He joined the Arkansas State University faculty in 2007. He is internationally recognized in the field of bioprocessing of colchicine and a pioneer in industrial-scale bioreactor for pharmaceutical production. He has over 45 peer-reviewed publications and numerous invited presentations. He serves as an expert of grant proposals as well as numerous scientific journals. Sivakumar's lab focuses on metabolic engineering of colchicine and developing new anticancer molecules.