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## Computational analysis and optimization of therapeutic potentials of phytochemicals isolated from Indian medicinal plants against HIV-1

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The application of plant based principles may prove to be highly useful, affordable and efficient to stop HIV-1 progression. It may be accelerative in transition from development to usage. Also, the toxicity may be managed with usage of herbal preparations. Recently, a number of natural products have shown to possess anti HIV activity globally. The US National Cancer Institute (NCI) has initiated screening of thousands of plant extracts in search of effective drugs against HIV-1. The michellamine series of alkaloids and derivatives of betulinic acid, phytochemical alpha-terthienyl derivatives, green tea extracts containing ((-)-epigallocatechin-3-gallate (EGCG)), Brazil nut and caocao containing immunopotentiators, grapes and red wine containing antioxidants, *Punica granatum* (pomegranate) and several others have been recently shown to possess antiHIV-1 properties. The aqueous and ethanolic extracts of *Phyllanthus amarus* exhibit potential to inhibit replication of even antiHIV-1 drug resistant variants in different ways. The ethanol extract of *Nelumbo nucifera* Gaertn. (Kamal) as well as pine cone extract from *Pinus yunnanensis* has been shown to contain molecules showing activity against antiHIV-1. Using computational tools, the chemotherapeutic potential of these herbal molecules may be analysed and optimized further to achieve better compounds which could be cost effective, more bioavailable, safer with no toxicity issues and with higher potential to inhibit all forms of drug resistant variants of HIV-1 in AIDS patients.

## **Biography**

Bechan Sharma, PhD from BHU-Varanasi and CDRI-Lucknow, India, has been Visiting Scientist/Professor at UMDNJ-NJ Medical School, Newark, USA (2000-2002); and Italy, France, Thailand, Brazil, Germany and other countries. He is a Senior Professor/Ex-Chairman of Departments of Biochemistry and Biotechnology. He has published over 100 research papers in peer reviewed international journals and one US patent. His book on "*Recent Trends in Biotechnology*" has been published in two volumes by Nova Publishers-NY, USA. He is a reviewer for 100 international/national journals and Chief-Editor/Guest Editor/Associate Editorial/ Member Editorial Board for 60 international/national journals.

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