

Derivatives of compounds present in vegetables found to inhibit HIV

New Delhi, Aug 14: Over the past few decades, Acquired Immunodeficiency Syndrome (AIDS) has claimed several million lives. The world is still far from a cure, even though it is now considered to be a manageable disease, with recent advancement in therapeutics. The disease is caused by the Human Immunodeficiency Virus type-1 (HIV-1). This virus hijacks the cellular machinery of the human body to not only propagate inside the host, but also to evade the host's defense mechanisms. The ability of the virus to develop multidrug cross-resistance necessitates the use of newer approaches to combat HIV/AIDS.



Isothiocyanates (ITCs), a group of chemicals that are found in some cruciferous vegetables like broccoli and cauliflower, have found a prominent place in biomedical science. Scientists at the National Centre for Cell Science (DBT-NCCS) in Pune, an autonomous institute of the Department of Biotechnology (DBT) studied eight novel derivatives of ITCs and found them to inhibit HIV-1 virus from multiplying, albeit with different efficiencies. One of these, which they called 'SCS-OCL-381', was found to have anti-HIV activity at concentrations that were non-toxic in studies carried out at the laboratory scale.

The scientists probed further and were able to decipher the molecular mechanisms that enable this chemical compound to prevent the virus from multiplying. They found that it inhibits replication of the virus by modulating a type of protein called the nuclear matrix associated protein, SMAR1. These findings, which were published in the journal, Antiviral Research,

indicate that it might be worthwhile to explore the potential of ITC derivatives and SMAR1 for the development of therapeutic candidates against AIDS.

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