Calcium spirulan, an inhibitor of enveloped virus replication, from a blue-green alga Spirulina platensis.

Hayashi T, Hayashi K, Maeda M, Kojima I.
Faculty of Pharmaceutical Sciences and School of Medicine, Toyama Medical and Pharmaceutical University, Toyama, Japan.

Abstract

Bioactivity-directed fractionation of a hot H2O extract from a blue-green alga Spirulina platensis led to the isolation of a novel sulfated polysaccharide named calcium spirulan (Ca-SP) as an antiviral principle. This polysaccharide was composed of rhamnose, ribose, mannose, fructose, galactose, xylose, glucose, glucuronic acid, galacturonic acid, sulfate, and calcium. Ca-SP was found to inhibit the replication of several enveloped viruses, including Herpes simplex virus type 1, human cytomegalovirus, measles virus, mumps virus, influenza A virus, and HIV-1. It was revealed that Ca-SP selectively inhibited the penetration of virus into host cells. Retention of molecular conformation by chelation of calcium ion with sulfate groups was suggested to be indispensable to its antiviral effect.

PMID: 8984158 [PubMed - indexed for MEDLINE]