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Cellular and clinical efficacy of iota carrageenan against viruses associated with the common cold

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Abstract

Iota carrageenan is a naturally occurring sulfated polysaccharide that has shown efficacy against the common cold. We aimed to provide a comprehensive review of the anti-viral properties of iota carrageenan, including relevant *in vitro*, animal and clinical studies. Methods: To identify all papers associated with iota carrageenan's efficacy against the common cold, electronic databases like PubMed and Scopus, and general search engines like Google Scholar were screened using search terms "Iota Carrageenan" AND "Common Cold" AND "Influenza" AND "Antiviral". Two *in vitro* studies, one animal study, four clinical trials and one pooled analysis were identified between 2008 and 2015. Common endpoints between clinical trials, including the reduction of viral load, duration of disease, symptoms, and relapse rates, were presented and compared to demonstrate the overall efficacy of iota carrageenan against the common cold. Results: We identified two *in vitro* studies, one animal study, four clinical trials and one pooled analysis relevant to the anti-viral effects of iota carrageenan. *In vitro*, iota carrageenan protected nearly 100% of HeLa cells infected with HRV2, while animal studies revealed significantly increased survival and reduced viral load in mice treated with lethal doses of the H1N1 virus. Reduction in viral loads, duration of disease, relapse rates and symptom alleviation were found to be significant in 3, 2, 2 and 1 of the four clinical trials, respectively. Conclusion: Iota carrageenan has proven to be effective against three of the most common pathogens known to cause the common cold. Further studies are needed to characterize this efficacy.

Keywords: Iota carrageenan, common cold, nasal spray, influenza, rhinovirus, coronavirus

List of abbreviations

HRV	Human Rhinovirus
CDC	Center for Disease Control
FDA	US Food and Drug Administration
USDA	US Department of Agriculture

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