

Antiviral activity of an aqueous extract derived from *Aloe arborescens* Mill. against a broad panel of viruses causing infections of the upper respiratory tract.

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Abstract

BACKGROUND:

A number of antiviral therapies have evolved that may be effectively administered to treat respiratory viral diseases. But these therapies are very often of limited efficacy or have severe side effects. Therefore there is great interest in developing new efficacious and safe antiviral compounds e.g. based on the identification of compounds of herbal origin.

HYPOTHESIS:

Since an aqueous extract of *Aloe arborescens* Mill. shows antiviral activity against viruses causing infections of the upper respiratory tract in vitro we hypothesised that a product containing it such as Bioaron C(®) could have an antiviral activity too.

STUDY DESIGN:

Antiviral activity of Bioaron C(®), an herbal medicinal product consisting of an aqueous extract of *Aloe arborescens* Mill., Vitamin C, and *Aronia melanocarpa* Elliot. succus, added as an excipient, was tested in vitro against a broad panel of viruses involved in upper respiratory tract infections.

METHODS:

These studies included human adenovirus and several RNA viruses and were performed either with plaque reduction assays or with tests for the detection of a virus-caused cytopathic effect.

RESULTS:

Our studies demonstrated an impressive activity of Bioaron C(®) against members of the orthomyxoviridae - influenza A and influenza B viruses. Replication of both analysed influenza A virus strains - H1N1 and H3N2 - as well as replication of two analysed influenza B viruses - strains Yamagata and Beijing - was significantly reduced after addition of Bioaron C(®) to the infected cell cultures. In contrast antiviral activity of Bioaron C(®) against other RNA viruses showed a heterogeneous pattern. Bioaron C(®) inhibited the replication of human rhinovirus and coxsackievirus, both viruses belonging to the family of picornaviridae and both representing non-enveloped RNA viruses. In vitro infections with respiratory syncytial virus and parainfluenza virus, both belonging to the paramyxoviridae, were only poorly blocked by the test substance. No antiviral activity of Bioaron C(®) was detected against adenovirus - a non-enveloped DNA virus.

CONCLUSIONS:

These results represent the first proof of a selective antiviral activity of Bioaron C(®) against influenza viruses and create basis for further analyses of type and molecular mechanisms of the antiviral activity of this herbal medicine.

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KEYWORDS:

Aloe arborescens Mill.; Antiviral activity; Plant extract; Xanthorrhoeaceae

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