

Antiviral activity and possible mechanisms of action of *Acacia nilotica* against influenza A virus

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Abstract

We investigated the anti-influenza virus activity of *Acacia nilotica* and possible mechanisms of action *in vitro*. We found that *Acacia nilotica* has anti-influenza-virus activity and both pre-incubation of virus prior to infection and post-exposure of infected cells with *Acacia nilotica* extract significantly inhibited virus yields. Influenza-virus-induced hemagglutination of chicken red blood cells was inhibited by *Acacia* extract treatment, suggesting that *Acacia* can inhibit influenza A virus infection by interacting with the viral hemagglutinin. Furthermore, *Acacia* extract significantly affect nuclear transport of viral nucleoprotein (NP). To best of our knowledge, this study revealed for the first time that *Acacia nilotica* extract can inhibit both viral attachment and replication and offers new insights into its underlying mechanisms of antiviral action. The fruit husk of *Acacia nilotica* collected from Sudan and extracted with 70% methanol. The crude extract was screened for its cytotoxicity against MDCK cell line by alamarBlue assay and WST-1 assay. Antiviral properties of the plant extract were determined by cytopathic effect inhibition assay and virus yield reduction assay (plaque assay). Time of addition assay and nuclear export mechanism were also performed.

Biography:

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