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Comparison of the antiviral potential of CYSTUS052 and oseltamivir against H5N1 influenza virus

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Influenza, still represents a major threat to humans and several animal species. Beside vaccination, only two classes of drugs are available for antiviral treatment against this pathogen. The appearance of highly pathogenic avian influenza viruses of the H5N1 subtype, able to infect humans reveals the urgent need for new and efficient countermeasures against this disease. Even though several antiviral compounds have been developed against the influenza virus, their long-term efficacy is often limited, because of their toxicity or the emergence of drug-resistant virus mutants. Moreover, it is also widely discussed that neuraminidase inhibitors the most common anti-influenza agents, are less effective against new H5N1 isolates. Previously, we were able to show that a polyphenol rich plant extract from a special variety of Cistus incanus named CYSTUS052 exhibits antiviral activity against influenza viruses in vitro and in vivo. Therefore, we investigated the antiviral potential of oseltamivir and CYSTUS052 against various H5N1 influenza viruses. We tested the antiviral ability of a single treatment with CYSTUS052 or oseltamivir, against five H5N1 viruses, isolated 2006 and 2007 from avian species in Germany and against the human H5N1 isolate Thailand/1(KAN-1)/2004. Using an in vitro infectivity inhibition assay we found that during the first 24 hours after infection a single treatment of CYSTUS052 is up to 100 fold more effective against these H5N1 viruses compared to oseltamivir. Therefore, we conclude that CYSTUS052 given prior to infection might be an effective antiviral with prophylactic potential against H5N1 influenza viruses.

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