Keywords: infectious diseases; respiratory illnesses; natural products; anti-viral compounds

**Abstract**

We have investigated the ability of extracts from three South African plants, *Aloe africana, Protea repens* and *Strelitzia reginae*, to inactivate influenza virus. Only the *P. repens* extract was able to inactivate influenza viruses from both humans and birds (2) in a concentration-dependent manner. *P.repens* extracts may prove useful for developing new treatments for influenza patients (3).

**Introduction**

Infectious agents cause many human diseases (4). For instance, human immunodeficiency virus (HIV) and other communicable diseases were responsible for 50% of all deaths in South Africa in the year 2000 (ref) (5). Substances isolated from plants and fungi are the basis for the treatment of many human diseases (ref). For instance, artemisin (6) from the plant xxx (7) has been used to treat malaria strains (8) resistant to previously used drugs (ref) (9, 10). (11) To increase the probability of finding plant extracts active against microorganisms (12), we decided to examine the huge variety of previously untested plants available in southern Africa. We began by investigating the ability of extracts of three South African plants (*Aloe africana, Protea repens* and *Strelitzia reginae)* to inactivate influenza virus particles and discovered (13) that the P. repens extract was able to do so (14).

**Materials and Methods**

H5N1 and H3N2 strains of influenza virus were obtained from the ATCC (American Type Culture Collection, USA) and grown in canine kidney cells as described (refs).

All plants used were obtained from A. Gardener’s Plant Supplies (Vienna, Austria). Plant extracts were prepared by crushing 10g of leaves in liquid nitrogen, allowing the temperature to rise and filtering the resulting liquid through cheesecloth. The filtrates were made up to 10 ml with water (15), adjusted to neutral pH using the cell culture medium (15) and stored at –70°C.

The anti-viral properties of the extracts were examined by mixing the volumes of the extracts indicated in the figure legends with 1ml of cell culture medium containing 106 influenza virus particles (16). Virus particles were also mixed with the same volumes of cell culture medium (17). All samples were incubated for 60 min. at room temperature. Subsequently, the number of surviving influenza virus particles was determined by placing the treated virus samples on canine kidney cells. The number of cells destroyed, as detected by cell staining (ref), is directly proportional to the number of surviving viral particles.

* Check the spelling.
* Link this sentence to the previous one and write it more clearly and strongly.
* Artemisinin is used to treat patients, not malaria strains.
* HIV is irrelevant to this manuscript! More background on influenza virus is required.
* This word is too general. Find a better one.
* Split this sentence into two and make the second part stronger.
* Include a sentence making the goal of the work clearer.
* Another example of a plant product is required.
* The descriptions are inaccurate.
* The name of the plant must be in the next version.
* The sentence is difficult to read and does not fit with the figure legends.
* Make the title active.
* The use of artemisinin is poorly explained.
* This word is too strong. Find a better one.
* Write this sentence more clearly and strongly.
* Omit needless words.
* State why this was done.