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Anti-influenza action of calluses from tobacco-plants

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Abstract: Background.

Plants are a rich source of substances with antiviral or virucidal activity. In our previous research, we found antiviral effect of protease inhibitors from soybeans, haricot, potatoes, and wheat germ powder.

Objectives.

Study of virucidal activity and toxicity of callus extracts (CEs) prepared from different tobacco-plants.

Methods.

Freeze-dried powders were obtained from calluses and processed by extracting 100.0 mg powder in 9.9 ml of solvent. CEs were clarified by centrifugation and their virucidal activity determined. Influenza virus A/Hong Kong/1/68 (H3N2) was diluted in the presence (experiment) and the absence of CE (control) to a concentration of 10,000 ($1 \times 10^4 \log_{10}$) TID₅₀. Control and experimental samples were incubated first at 4°C for 20 h and then at 37°C for 4 h. The number of infectious virus in the samples was determined by titration on fragments of chorio-allantoic membranes of 12-14 days old chick embryos. All experiments were performed in triplicates. Toxicity of the investigated CEs in studied doses were tested using the infusorians *Colpoda steinii* culture.

Results.

The highest levels of virucidal activity were found in the CEs from *Nicotiana suaveolens* and *Nicotiana glauca* (3.2 and 2.3 $\log_{10}$ TID₅₀ as compared to control, respectively). CE from *Nicotiana glauca* did not demonstrate a virucidal effect while CE from *Nicotiana glauca* had low activity. Virucidal activities of CEs from *Nicotiana glauca*, *Nicotiana glauca* and *Nicotiana glauca* were highly expressed (1.5 to 1.9 $\log_{10}$

Poster Presentation

TID₅₀ as compared to control). All investigated CEs in studied doses were not toxic for the infusorians *Colpoda steinii* culture.

Conclusion.

CEs from different tobacco-plants have a wide spectrum of anti-influenza virucidal activity levels in non-toxic doses.

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