

ANTIVIRAL SCREENING OF HOMOEOPATHIC DRUGS AGAINST ANIMAL VIRUSES*

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SUMMARY: The twelve homoeopathic drugs in thirty-four potencies were evaluated for their antiviral property against chicken embryo virus (CEV) and Simliki forest virus (SFV) causing viral encephalitis. Six drugs in seventeen potencies showed antiviral activity against CEV in varying degrees. However, Parotidinum in 200 and Agaricus in 6 potency completely inhibited this virus multiplication on chorio-allantoic membranes (CAM) of developing chicks. Drugs, like Vaccininum in 6, 30, 200 & 1000 and Pulsatilla in 6, 30, 200 and 1000 potencies enhanced replication of this virus. However, none of the four drugs in eight potencies tested against SFV were found effective in either preventing the disease or death of mice.

INTRODUCTION

There is a crying need of antiviral drugs for prevention and control of viral infections in man and animals. Despite herculcan efforts of long standing, discovering antiviral drugs which could selectively inhibit viral replication of both DNA and RNA type have not been possible so far. Though due to great advancement of newer techniques and better understanding of virus structure and its biochemistry, a large variety of substances having antiviral activity have been found during this long period of search. But majority of them are either too toxic or could be used only externally in restricted manner. An antiviral drug having broad spectrum antiviral activity with full clinical efficacy and safety which can be prescribed like any antibacterial drug during viral infections is a dream not fulfilled as yet.

During the long search for antiviral drugs, a variety of natural products like plants, fungi, bacteria, flora and fauna of seabeds have been screened. However, no one ever took pains of investigating homoeopathic drugs for their antiviral activity in spite of repeated clinical claims world over. Some plant pathologists and virologists, however, have recently reported antiviral activity of some homoeopathic and biochemic drugs against plant viruses. [Abidi *et al* (1977), Khurana (1968, 1971, 1980, 1981), Singh *et al* (1980), Verma *et al* (1969), Verma and Verma (1963), Verma and Awasthi (1978)].

In view of the paucity of work in the antiviral efficacy of homocopathic drugs against animal and human viruses, a scheme of screening homoeopathic drugs against viral infections was initiated at the Central Drug Research Institute, Lucknow sponsored by the Central Council for Research in Homocopathy, New Delhi (Under Ministry of Health & F.W., Government of India). The results obtained were communicated to the Council through annual progress reports for the periods 1982-83, 1983-84 (Singh &

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Gupta). The present paper is based on the results observed in the research work in the same scheme and the reports sent to the Council. It includes screening of twelve homoeopathic drugs in thirty-four potencies against two animal viruses, e.g. CEV, SFV, in chick embryo system and mice model respectively.

MATERIALS AND METHODS

(1) *Viruses*: Chicken embryo virus (CEV) which forms minute pock-like lesions on the chorio-allantoic membrane (CAM) was isolated from naturally infected chick embryos and was maintained on CAM throughout the study. This virus is further being characterized.

Simliki forest virus (SFV), an alpha RNA virus, causing encephalitis in mice was maintained on laboratory-bred swiss albino mice of the Institute by intra cerebral inoculation of virus in 0.02 ml quantity. The virus was prepared from 20% brain homogenate of infected mice in phosphate buffered saline (PBS, pH 7.2). It was completely freed from cellular debris by centrifugation (7000 rpm) and filtration in sintered glass filter. It was stored at -20°C in sterilized glass container till further use.

(2) *Drugs*: Eupatorium perfoliatum 6, 30, 200, 1000, Parotidinum 30, 200, 1000, Agaricus muscarius 6, 30, 200, 1000, Syphilinum 30, 200, 1000, Thuja occidentalis 30, 200, 1000, Ocimum sanctum 30, Vaccinium 6, 30, 200, 1000 and Pulsatilla 6, 30, 200, 1000 were screened against chicken embryo virus on chick embryo system.

Drugs, like Apis mel. 30, 1000, Causticum 30, 200, Lachesis 30 and Belladonna 30, 200, 1000 were evaluated against Simliki forest virus (SFV) in mice model.

ANTI VIRAL EVALUATION

(1) *Chick embryos*: The antiviral activity of homoeopathic drugs against CEV was evaluated on CAM of developing chick embryos. A desired virus suspension prepared from infected CAM, free from cell debris and showing +4 degree of infectivity (100%) in 0.1 ml quantity was inoculated into five embryonated eggs with the 0.2 ml of each potency of the drug (diluted 10 times in sterilised distilled water and given 10 succussions) simultaneously, together, before and even after virus infection. In controls, 0.2 ml of phosphate buffer saline (PBS) in place of drug was inoculated. The inoculated eggs were then incubated at 37°C for 5 hours. The eggs were then cut open, CAM collected and examined for extent of virus lesions.

For demonstrating the enhancing effect of drugs on virus replication, the technique followed was the same as described above except the virus was diluted 10 times in PBS which was showing +1 or less degree of virus lesions. 0.1 ml of this dilution along with 0.2 ml of drug was inoculated into a batch of five embryonated eggs. Controls were also run inoculated with 0.1 ml of virus and 0.2 ml of PBS in place of drug.

(2) *Mice*: The antiviral activity of homoeopathic drugs in various

potencies was tested against SFV in mice. The drug in 0.2 ml quantity was given to five mice by oral/sub-cutaneous route for three consecutive days before challenging with virus. The virus was inoculated in 0.02 ml quantity by intra-cerebral route. The mice were then observed for 72 hours for protection or death.

RESULTS

The results of antiviral evaluation of six homoeopathic drugs in eighteen potencies presented in Table 1 show that except Thuja occidentalis 30, 200 & 1000, most of potencies of three drugs exhibited antiviral activity against CEV. Parotidinum 200 and Agaricus 6 were 100% effective in preventing virus replication, while Agaricus muscarius 30, Eupatorium perf. 6, 1000 and Parotidinum 1000 were the drugs whose antiviral activity was in the order of 70 to 87.5%. The drugs, like Eupatorium 30, 200, Agaricus muscarius 200, 1000 and Parotidinum 30 showed between 50 to 66.6% virus inhibition. However, antiviral effect of many drugs, like Thuja occidentalis 30, 200, 1000,

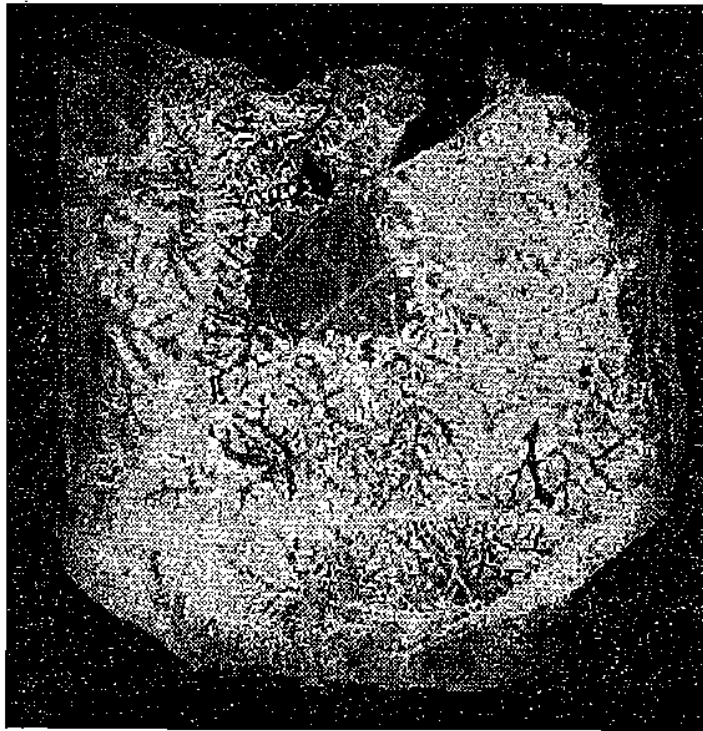


Fig. 1

Photograph exhibiting 4+ (100%) virus infection on the chorio-allantoic membrane of the chick embryo (Control).

Syphilinum 30, 200, 1000 and *Ocimum sanctum* 30 ranged between 0 to 40%.

From the overall results, it may be concluded that majority of the drugs in their potentised form showed antiviral activity against CEV. The results also reveal that many potencies of the same drug act as an independent entity as no correlation exists between antiviral property of one drug in different potencies either from lower to higher or higher to lower.

The enhancing effect on virus replication of homoeopathic drugs, like *Vaccinium* 6, 30, 200, 1000 and *Pulsatilla* 6, 30, 200, 1000 as shown in Table 2 demonstrate that the degree of virus growth was increased to 4+ (100%) compared to control where it was +1 or even less than that (10—25%).

The drugs tested against SFV in mice were *Laechesis* 30, *Belladonna* 30, 200, 1000, *Apis mel.* 30, 1000 and *Causticum* 30, 200. However, none of them were found effective in preventing mortality of mice.

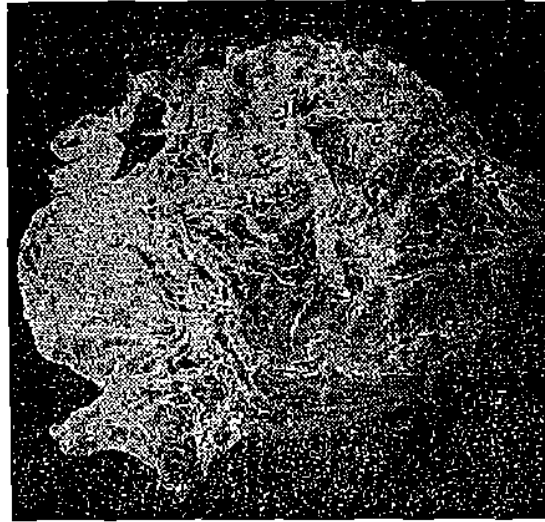


Fig. 2

Photograph showing 100% inhibition of chicken embryo virus (CEV) on the CAM caused by homoeopathic drug in potency (Treated).

DISCUSSION

The antiviral activity of homoeopathic medicines and their magical action whether given simultaneously, together, before or even at intervals after virus inoculation showing no adverse effects on the host system clearly prove that these drugs are safe antivirals in every sense and can be of immense value both as prophylaxis and in control of viral infection of man and animals. The results amply demonstrate that there is no room for any

TABLE I
ANTIVIRAL EFFECT OF HOMOEOPATHIC DRUGS AGAINST CHICKEN EMBRYO VIRUS (CEV)

Drugs	Potencies	Number of eggs inoculated/Number of CAM collected	Number of CAM showing lesions/ Number without lesions	Per cent inhibition
<i>Eupatorium perfoliatum</i>	6	5/8	2/6	75
	30	5/6	3/3	50
	200	5/8	4/4	50
	1000	5/8	1/7	87.5
<i>Parotidinum</i>	30	5/8	3/5	65.2
	200	5/10	0/10	100
	1000	5/10	2/8	80
<i>Agaricus muscarius</i>	6	5/7	0/7	100
	30	5/10	3/7	70
	200	5/6	2/4	60.6
	1000	5/8	4/4	50
<i>Syphilinum</i>	30	5/10	7/3	30
	200	5/9	7/2	28
	1000	5/10	6/4	40
<i>Thuja occidentalis</i>	30	5/10	10/0	0
	200	5/10	10/0	0
	1000	5/10	10/0	0
<i>Ocimum sanctum</i>	30	5/9	6/3	33
Control	0.1 ml PBS	5/10	10/0	0

doubt regarding their efficacy and scientificity.

Since homoeopathic drugs are already proved on humans and are non-toxic to plants, animals and man besides being cheap, they should be patronised at national and international levels in both human and veterinary health care. In fact, bodies like World Health Organisation (WHO), Food & Agriculture Organisation, governments of different countries and practising homoeopaths should put their energies to bring this system to forefront of national and international scene of health care.

From the results obtained it is also clear that homoeopathic medicines act independently as no correlation is found with regard to their antiviral efficacy from lower to higher potency and higher to lower. This finding confirms the clinical observations of practising physicians the world over. Likewise, the results of both inhibition and acceleration of virus replication caused by homoeopathic drugs in their potencies are in conformity with the

TABLE 2
THE ENHANCING EFFECT OF HOMOEOPATHIC DRUGS ON VIRUS MULTIPLICATION OF CHICKEN EMBRYO VIRUS (CEV)

Drugs	Potencies	Quantity of virus inoculum	Number of eggs inoculated/Number of CAM collected	Number of CAM showing lesions/Number without lesions	Extent of lesion in each CAM	Per cent enhancement
Vaccinium	6	.1 ml of 1/10 dilution	5/10	10/0	10 → +++	75
	30	„	5/10	10/0	5 → +++++ 5 → +++	100 75
	200	„	5/10	10/0	5 → +++++ 4 → +++ 1 → ++	100 75 50
	1000	„	5/10	10/0	6 → +++++ 4 → +++	100 75
Pulsatilla nigricans	6	„	5/10	8/2	4 → +++ 6 → ++	75 50
	30	„	5/10	8/2	5 → ++ 3 → +	50 25
	200	„	5/10	10/0	6 → +++++ 4 → +++	100 75
	1000	„	5/10	10/0	5 → +++++ 5 → +++	100 75
Control	0.1 ml PBS	0.1 ml of 1/10 dilution of virus	5/10	10/0	6 → + 4 → only pin head isolated lesions seen	25 10-25

findings of clinicians and experimentalists [Verma *et al* (1969), Khurana (1971), Singh *et al* (1981)].

Experimental demonstration of antiviral activity of high order elicited by homoeopathic drugs against animal viruses is the direct proof that the foundation of this system of medicines is based on certain principles which have not yet changed in spite of 200 years of its inception.

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