Antiviral Activity of ASAP Solution

Aim — To check antiviral activity of ASAP Solution (22ppm) using a bacteriophage model.

Culture Used — T-even phage
E. coli host

Method — Phage virulence
Virulence of Phage was activated by performing 3 successive transfers in the host and extracting with chloroform. The virulence of the Phage was checked by spotting on E. coli (host) lawn and checking for zone of lysis.

Experimental conditions
10 ml of ASAP solution was challenged with 1ml of Phage suspension (10^9 Phage particles). Similarly a negative control was run using 10 ml saline in lieu of ASAP solution. 20 microliter aliquots were withdrawn from 0 hour onwards at 30 minutes intervals and presence of Phage was determined using the host indicator system. Results are as per Table-1.

Table 1:

Sr. No.	Exposure Time (Hrs.)	Test		Control	
		Zone of Lysis	Presence of Phage	Zone of Lysis	Presence of Phage
1.	0	+++	Present	+++	Present
2.	0.5	+++	Present	+++	Present
3.	1	++	Present	+++	Present
4.	1.5	+	Present	+++	Present
5.	2	2 viral particles	Present	+++	Present
6.	2.5	-	Absent	+++	Present

Conclusion — The ASAP Solution showed viricidal activity completely eliminating all viral particles in a period of 2.5 hours. The negative control samples showed presence of Phage after 2.5 hours under similar conditions. Though silver is postulated to exert anti-microbial activity by uncoupling the ETC mechanism in prokaryotes, it is acting through a different mechanism in this case possibly through precipitation of the viral proteins. These results could be extrapolated and it would be interested to determine antiviral activity against known pathogenic animal viruses using a tissue culture model.