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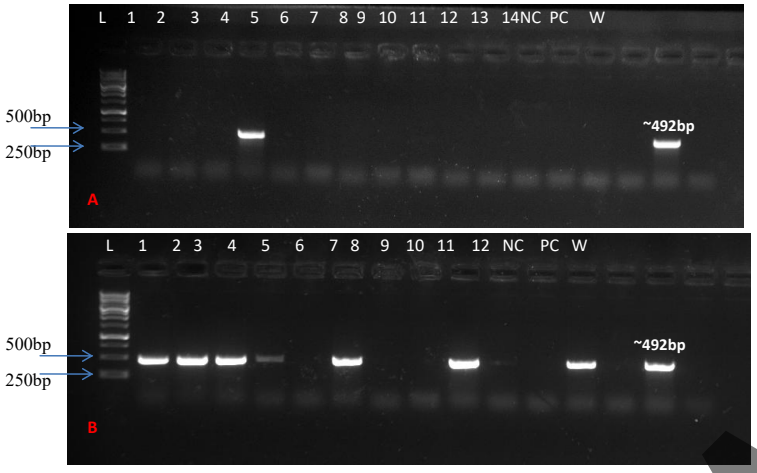

Fig. 2. Agarose gel electrophoresis of PCR product for PLRV presence in potato plants. L, 1kb Ladder; lane one to fourteen in gel A and one to twelve in gel B are PLRV transmitted plants by by *A. solani* and *M. persicae* respectively; NC, experiment negative control; PC, positive control and W, PCR reaction control. Here experiment negative control represents plant released with aviruliferous aphids.

efficiency may be attributed to greater virus acquisition which was observed by Roberts and Harrison (1979) found 10 to 30 times higher PLRV particles in *M. persicae* by immunosorbent electron microscopy, were than other less efficient vector *M. euphorbiae*. The present study also corroborates with the previous studies whereas *M. persicae* was found most potential vector among *Macrosiphum euphorbiae*, *Aphis gossypii* and *Aphis fabae* (Khaled et al., 2018).

This varied transmission of viruses by vectors could be attributed two factors, the gut membrane and salivery glands. The gut membrane may act as a barrier regulating passage of PLRV particles from the gut lumen into the haemocoel. This has been demonstrated using *M. persicae* (Mp3 clone) which is a poor transmitter of PLRV by Rouze-Jouan et al. (2001) by microinjection in *M. persicae* clones resulted in significant increase in PLRV transmission compare to virus acquisition from infected plant The assessor salivary glands basal lamina also plays an important role in maintaining virus-vector specificity of the Luteoviridae family (reviewed by Gildow, 1999). This was demonstrated by Rochow (1969) by microinjected purified Barley Yollow Dwarf Virus isolates into non-vector aphid species, still the virus could not be transmitted, suggesting that the gut membrane may not play role in the virus transmission, similar finding was also observed by Rochow et al. (1975). The role of accessory salivary glands (ASG) was further confirmed by Gildow et al. (2000) the transmission of soybean dwarf viruses (SbDV) and (SbDV-D) were compared in vector and non-vector aphid species. Absolute vector specificity was observed SbDV-D was observed with *A. solani* and SbDV-Va19 with *Acyrthosiphon pisum* and *M. persicae* due to assessor salivary glands though there was no difference in hindgut acquisition specificity was observed and both *A. solani* and *M. persicae* were able to transport SbDV-D and SbDV-Va19 into the haemocoel.

The present study reveals that the *A. solani* could also transmitted the PLRV though with far lesser efficiency than *M. persicae,* this is the first ever report with this species with PLRV Shimla isolate. This will further help us to understand the epidemiology of PLRV in field and considering *A. solani* as a potential vector in potato production system.

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