



**Figure S3. Evaluation of the protective effect of the pepper vein mottle virus (PVMV) attenuated mutant m4-8 against the different PVMV isolate Xs-1 in *Nicotiana benthamiana* plants. (A and B) Observation on symptom development and growth potential of test *N. benthamiana* plants. Plants 4 days after inoculation with m4-8 were challenged with Xs-1. Symptom development was recorded daily for 12 days. Ten plants were used for each treatment. (C) Xs-1 infection was assessed by bioassay on *Chenopodium quinoa* leaves. Local lesions were observed under white light (upper panel) and UV light (365 nm) (lower panel) 10 days post-inoculation.**