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APPLYING OF RECOMBINANT NUCLEOCAPSID PROTEIN FOR PRODUCTION OF SPECIFIC ANTIBODIES AGAINST FIG MOSAIC VIRUS

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Fig mosaic disease (FMD) is considered as one of the most important and devastating viral diseases in fig trees throughout the world. The disease would led to considerable reduction in the quantity and quality of yeilds. The disease is caused by Fig mosaic virus (FMV) a member of the genus *Emaravirus*. To cease the destructive effect of the disease, early detection of disease is crucial for production of virus free plants in nurseries and gardens. Therefore, simple and sensitive diagnosis tools are decisive. The main objective of the present study is developing antibodies against FMV for reliable and sensitive detection of disease. Towards this aim, the gene encoding nucleocapsid protein of FMV was initially PCR-amplified and and cloned into pET28a(+) bacterial expression vector followed by expression in bacterial host. Purification of recombinant nucleocapsid protein (NP) was carried out under native conditions.The purified recombinant FMV-NP was used for immunization of rabbits. Purification of immunoglobulin was performed by affinity chromatography using CNBr-activated sepharose 4B column. The purified immunoglobulin was conjugated with the alkaline phosphatase enzyme. The capability of prepared IgG and conjugate was evaluated through double antibody sandwich ELISA (DAS-ELISA), dot immuno binding assay (DIBA) and Western-blot analysis. Results obtained from serological assays proved specificity of prepared antibody for efficient detection of disease in infected plants. To the best of our knowledge, this is the first report for preparing specific antibody against FMV that is mainly raised by applying of recombinant nucleocapsid protein.

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