CHARACTERIZATION OF GRAPEVINE VEIN CLEARING VIRUS EXPRESSION STRATEGY AND DEVELOPMENT OF CAULIMOVIRUS INFECTIOUS CLONES

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Abstract

*Grapevine Vein Clearing Virus* (GVCV) is a newly discovered DNA virus in grapevine that is closely associated with grapevine vein clearing syndrome observed in vineyards in Missouri and surrounding states. However, Koch’s postulates have never been completed. This dissertation presents projects in four chapters that investigate the biology of GVCV, as well as an introductory chapter on the relevant literature. Project One describes the characterization of the GVCV promoter and mRNA transcripts, Project Two discusses the development of a co-infiltration system for caulimoviruses to evaluate putative infectious clones, Project Three describes the construction of a GVCV infectious clone and characterization of putative GVCV virions, and Project Four describes the evaluation of mealybugs as potential vectors for GVCV. This information is essential for completion of Koch’s postulates and it is a step further toward efficient management of the grapevine vein clearing syndrome in the future.