

CSI Dublin: Hunt for the Potato Killer

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As the current most efficient way to amplify sequences of DNA, the Polymerase Chain Reaction (PCR) followed by gel electrophoresis has become a widespread and crucial lab technique. Yet, most students learn this technique in their later years of their undergraduate degree. This project is aimed to teach high school students the principles and process of DNA extraction, PCR and gel electrophoresis. Five lessons have been outlined where upper level high school students will learn about the plant pathogen responsible for the Irish Potato Famine (*Phytophthora infestans*). Students will track the history of the pathogen spread throughout the United States and study details about the social and agronomic influences of the Great Famine. After understanding the societal impact of the Great Famine, the students will learn to isolate the pathogen and they will run a PCR and gel electrophoresis on DNA extractions from healthy and infected potato leaves. The students will learn about plant pathogens, food security, responsible farming practices, and common molecular lab techniques. This project is a validation of the lesson plan originally developed by Keenan Teaching Fellow, Rebecca Hite.