OBTAINING A DNA PROFILE FROM ROCKS AND BRICKS: A REVIEW OF B&E CASES

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Along with the advancement of DNA technology comes the increase in applications in which it can be useful. Property crime caseload has rapidly increased as touch DNA has become more prevalent in forensic casework, and testing of evidence previously considered poor quality is now considered probative. Rocks and bricks are often used in breaking and entering cases to gain access to an establishment or car by breaking out windows. These rocks and bricks may be valuable sources of DNA due to their rough surfaces, as well as the theory that they've previously been handled less than items found inside the business, home, or car. While evidence collected from rocks and bricks can be valuable, this type of evidence can also be problematic due to not only a low amount of template DNA, but also the presence of humic acid found in dirt. In our current casework we have utilized both organic and solid phase extractions, determined by the condition of the swabs and the amount of dirt present. We implemented purification of the extract, when needed, and concentration of the extract to maximize the amount of input DNA into the amplification reaction. Amplification was done using the Promega PowerPlex® Fusion STR kit, and in some cases an increased injection time was beneficial during separation and detection on an AB 3500 genetic analyzer. By using varying combinations of organic extraction, purification, concentration, and increased injection times, our laboratory has been successful in developing useable profiles from both rocks and bricks submitted in breaking and entering cases. The profiles we have developed include some which have been associated to submitted standards, as well as unknowns which have had probative CODIS associations.