COMPARISON OF DNA ISOLATION TECHNIQUES: DO YOU REALLY GET WHAT YOU PAY FOR?

David Faith, Jenna Linke, and Anthony B. Cole
Biology Department
Dakota Wesleyan University
Mitchell, SD 57301

ABSTRACT

Currently, several DNA isolation kits are commercially available that are simple to use and provide quick extractions of DNA ready for use in other protocols. Several laboratory techniques are still used that include the use of such chemicals as cesium chloride, ethidium bromide, hexadecyltrimethylammonium bromide (CTAB), and butanol. Because some of these chemicals pose health risks in their use they are not readily available for high school science laboratories. Time constraints can also be a factor for laboratory exercises. Whereas the DNA isolation kits are relatively quick, the standard isolation protocols can take up to several hours. In addition, the costs for these supplies may also be prohibitive for their use not only in high school science labs but in small undergraduate research labs as well (The cost of a single isolation can vary from $2 to $5 per isolation depending upon the manufacturer and the origin of the DNA to be isolated). Therefore, we wanted to identify a rapid and economical DNA isolation protocol that yielded high quality DNA. Here, we compare the DNA obtained from a DNA isolation protocol that utilizes common off-the-shelf available reagents such as shampoo and alcohol to the DNA obtained from specialized DNA isolation kits and standard isolation techniques.