

Applicability of Electrophoresis in Wildlife Forensics

Briana Smith

Department of Forensic Science

Dr. Christopher O'Brien

Abstract

This research is important because it will help determine the applicability of electrophoresis to wildlife forensic. This project primarily focused on using sodium dodecyl sulfate polyacrylamide electrophoresis, SDS-PAGE. Most laboratories have all of the equipment needed, so this methodology will be easily accessible and inexpensive. The samples used in this project were proteins from the fibrous cartilage of short-fin mako sharks (*Isurus oxyrinchus*), blue sharks (*Prionace glauca*), and common thresher sharks (*Alopias vulpinus*). These samples were collected at various shark fishing tournaments throughout the summer of 2015. Shark finning has become illegal in certain areas so this research is trying to establish an inexpensive and quick way to determine what type of shark a fin has come from based on the proteins present. Fibrous cartilage from shark fins was chosen for this project because the fibrous cartilage has been shown to contain high levels of proteins. Two buffers were used in the procedure: a 10x Tris/Glycine/SDS solution as the running buffer and a 2x SDS-PAGE Laemmli as the sample buffer. Several Bradford Assays were conducted to determine the amount of proteins in solution. The Bradford Assays showed that there were not a lot of proteins present in solution.

Introduction

Electrophoresis is the movement of charged particles or ions through a medium under the influence of an electric field. There are many mediums that can be used for the different types of electrophoresis including: polyacrylamide gel, paper,

used to determine an easy way to identify what

Results

boiling, the heat could still be affecting the proteins in the sample. After higher levels of proteins can be detected, the samples of cartilage will be run in SDS-PAGE to determine if this method