

A Preliminary Study on Sumatran Elephant's Fecal DNA in Elephant Training Center, Way Kambas National Park

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INTRODUCTION

Sumatran elephant is in the brink of extinction and its population has decreased gradually. One of the natural habitat of sumatran elephants in Lampung is in Way Kambas National Park (WKNP). The captive sumatran elephant are preserved at the WKNP's Elephant Training Center (ETC) which face conservation challenge such as inbreeding drive [1]. The construction of a sumatran elephants molecular identity database including morphology, health status, and genetic profile needs to be done [2]. Genetic profile requires DNA in good quantity and quality. This study aimed to determine the comparison of the quality of fecal DNA of captive sumatran elephant in ETC WKNP.

Grinding based dung samples were used for simple and molecular DNA extraction techniques. Dung samples of 10 individuals of sumatran elephant was carried out on the time period of 1st, 2nd, 3rd, 4th, 5th, 7th, and 14th day. The laboratory tests consisted of fecal DNA extraction followed with electrophoresis for simple technique and fecal DNA extraction, Polymerase Chain Reaction (PCR) and electrophoresis for molecular technique. The data analysis was described qualitatively.

RESULTS AND DISCUSSION

The results of sumatran elephants faecal DNA using simple technique showed the absence of fecal DNA for all the samples used (Figure 1). In fecal samples, the concentration of DNA found in epithelial cells is in small concentration and thus resulting in no visualization of DNA bands in electrophoresis. Visualization of DNA bands needs to be in certain volume in order to be detected.

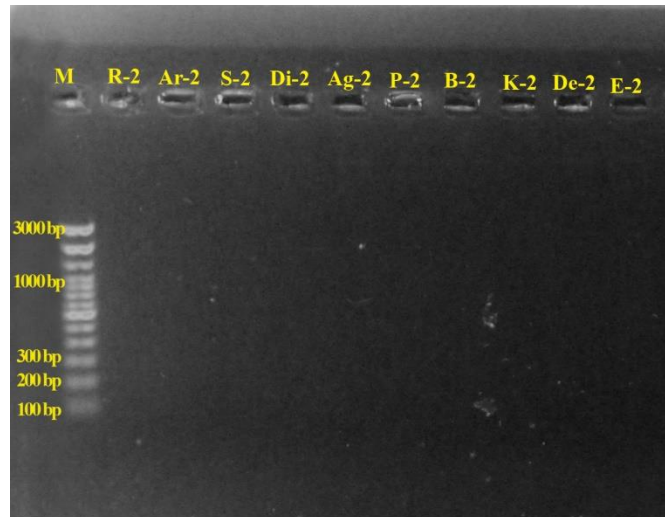


Figure 1. Simple technique electrophoresis result

Molecular technique showed 39 positive and 31 negative on DNA presence (Figure 2). Poor band conditions can be caused by imperfect DNA ingestion or the presence of endogenous endonuclease that degrades DNA [3].

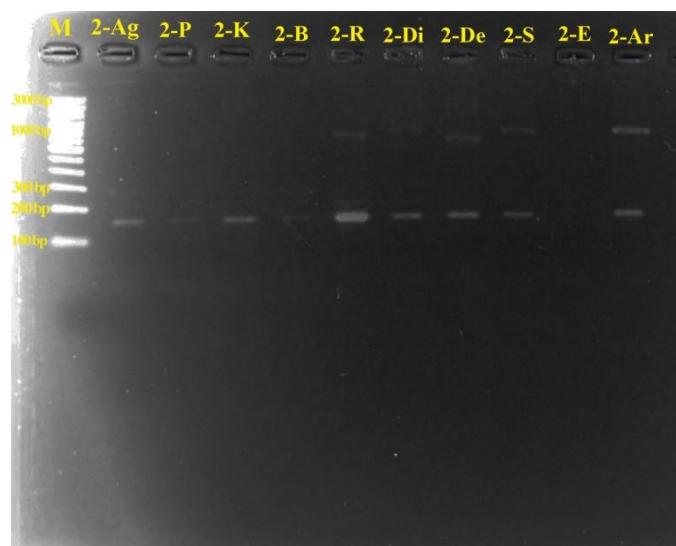


Figure 2. Molecular technique electrophoresis result

Keywords: fecal DNA, noninvasive, sumatran elephants

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