

UNIVERSITI TEKNOLOGI MARA



**THE COMPARISON OF PERSONAL LAB AND
ARCHITECT i2000SR IN ANALYSING SPECIMEN IN
LABORATORY**

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ABSTRACT

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The aim of the present study was to compare and contrast the two instruments that are being used in the hospital to analyse the samples that are being sent to the laboratories. There is an increase in the workloads of the laboratories technicians due to the increase of sample sent to the lab. The two instrument that are used in the laboratories is the Personal lab which uses the method Enzyme-Linked Immunosorbent Assay (ELISA) and Architect i2000SR which uses the method Chemiluminescent Micrparticle Immunoassay (CMIA) or the more famous name Chemi-flex technology. There are many differences in the sample size and the time of process in both instruments. The time consume for each sample by Architect i2000SR is 30 minutes in getting a full result out. Personal Lab uses a different method where the samples are all process in one run, which will take about 4 hours in getting a full result of the 91 samples. The method are all the same but the differences come in where the use of pre-trigger and trigger in Architect i2000SR. The technique and method used are the same in both instruments which is the “sandwich” noncompetitive assay.

Key words : Chemiluminescent Micrparticle Immunoassay (CMIA), Enzyme-Linked Immunosorbent Assay (ELISA), Time per sample.

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CHAPTER 1

INTRODUCTION

1.1 Background of the study

Medical laboratory technologies rely on analytical instrument and basic lab equipment on a daily basis, the use of instrument in analyzing specimen based on specific test has been widely used to ease the workload of laboratory staffs in hospitals(Studt, 2014). Personal lab and Architect are the instruments in laboratory that is being used by technician in hospitals.

Personal Lab is manufactured by the Adaltis based on the Biostad Company which is an Enyme-Linked Immunosorbent assay (ELISA) plate automated analyzer(Adaltis). The instrument is made in Italy and the weight is about 234 lbs. The Personal Lab is an automated microplate analyzer which is capable of fully automating enzymatic technique based on the reagent manufactures and instruction given and specifies (Biostad, 2014). The instrument allows open architecture for the ease of accessing the operation providing an alternative way to adjusting the management by manual method. The Personal Lab consists of two modules that are the instrument and the administration system. The instrument and administration system are all complete with reagents and software needed to operate the instrument (Adaltis).

The Architect i2000SR is manufactured by Abbott diagnostic from the diamond corporation. It is an improvement and modification of the previous instrument that is the Architect i1000sr. The Architect i2000sr is an immunology analyzer using the method chemi-flex technology or ChemiluminescentMicroparticle immunoassay CMIA(Kovacs, 1997). The instrument can hold an amount of two hundred of sample per 30 minutes of