

**Nur Elawati (Chemistry 2016)**

**Factory Laboratory 1A PT Petrokimia Gresik**

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I have internship experience at Factory Laboratory 1A PT Petrokimia Gresik on 1<sup>st</sup> July – 31<sup>st</sup> July 2019. During my internship, one of my tasks during my training was an analysis of the activity and quality of protease enzymes produced from applicon fermenters and enzyme plants, then determining the value of proteolytic enzyme activity with Lohlein Volhard Unit (LVU) method. The method used in this research is potentiometric titration. The research method starts from preparing tools and materials, sample preparation, blank preparation, and titration.

The tools used in this study were a burette, water bath, 100 mL beaker, 50 mL volumetric flask, pH meter, 10 mL microphone, magnetic stirrer. The materials in this study were aquades, casein 5% pH 8.2; HCl 0.2 N; 0.1 N NaOH; Whatman No. 1 filter paper; and enzymes pH 8.2. In the sample preparation step, casein was made to pH 8.2. After that, the solution was heated at 37°C for 10 minutes, followed by voting, and then heated again.. Then filtered and the filtrate was accommodated in a 100 mL beaker glass. In the blank preparation step, casein was made to pH 8.2, 8 mL of the solution was taken and heated at 37 for 10 minutes. Then 4 mL of 0.2 N HCl and 4 mL of 10% Na<sub>2</sub>SO<sub>4</sub> were added, then vortexed. After that, 4 mL of enzyme pH 8.2 was added and vortexed again. Then heat for 20 minutes. Then filtered and the filtrate was accommodated in a 100 mL beaker glass

In the titration stage, 10 mL of the filtrate in a beaker was taken, placed on a magnetic stirrer, and titrated with 0.1 N NaOH to pH 7.3. The volume of NaOH used is in mL units, and the proteolytic activity is calculated in LV units per gram using the following equation:

$$A = \frac{a}{b} \times 17,391 \times 1000$$

A= Protelytic activity

a= NaOH volume used ( $V_{\text{sample}} - V_{\text{blank}}$ )

b = concentration of enzyme in mg/mL (if solid)

The results obtained showed that the proteolytic activity of the protease enzyme produced in the applicon fermenter showed higher activity than the enzyme produced in

the enzyme plant besides the quality of the protease enzyme that had met the standards applied by PT Petrosida Gresik, which was more than the standard 1500 LVU/gram.