**ABSTRACT**
Active compounds of natural ingredients need to be extensively explored to determine their properties. *Capsicum annum* Linn is widely grown in southern Asia and Southeast Asia. This study aimed to determine the levels of capsaicin in *C. annum* L. ethanolic extract. A total of 300 g *C. annum* L. analyzed in the form of powder and extract solution. This study analysis performed thin layer chromatography (TLC) method to separate the adsorption on the adsorbent thin layer. The ethanol used as a solvent to extract capsaicin. The result showed that the capsaicin levels were found in the powder of 0.36% and extract solution of 1.84%. The linear regression equation was $y = 9.4571x + 546.67$, with $R^2 = 0.9983$, the capsaicin standard of 1020 µg/ml. It can be concluded that the extract solution of *C. annum* L. had a greater capsaicin level than in the powder form.

**Keywords:** Capsaicin, *Capsicum annum* Linn, Thin Layer Chromatography

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**RESULTS AND DISCUSSION**
This study analyzed capsaicin qualitatively with TLC-spectrophotodensitometer. TLC is a method of separating substances by tracing them through the stationary phase in the media plate. Substances can be separated by the TLC technique based on differences in the affinity of each component between the active and stationary phases. The amount of absorption of substances that have been separated can be measured by a spectrophotodensitometer.

The sample contents can be determined from the ratio between the absorption of the sample and its raw material. In this study, the results of capsaicin levels in the powder were 0.36% and ethanol extracts were 1.84% (Table 1). In the present study, showed that the capsaicin level using a linear regression equation was $y = 9.4571x + 546.67$, with $R^2 = 0.9983$, the capsaicin standard of 1020 µg/ml (Figure 1 and 2). The capsaicin area in ethanol extracts (3816.9) (Figure 4) higher than in powder form (2422.7) (Figure 3). Extraction is a method for obtaining active compounds from natural ingredients using suitable solvents. Natural ingredients need to be extracted to get some or all of the active ingredients used to synthesize the right dosage, easily stored, and maintain for a long time. The extracted material can be in the form of fresh ingredients or powder.
C. annum L. originates from tropical and subtropical regions of America, especially Colombia, South America, and continues to spread to Latin America, Europe and Asia, including Indonesia. C. annum L. contains capsaicin, dihydrocapsaicin, vitamin A, vitamin C, capsanthin, carotene, capsorubin, zeaxanthin, and cryptoxanthin dyes. Micro minerals, such as iron, potassium, calcium, phosphorus, and niacin are also contained in C. annum L. The active ingredient of capsaicin is efficacious as a stimulant of gastric acid secretion and prevents infections in the digestive system. Other elements in C. annum L. are capsicin which has analgesic properties, reduces asthma, and itching.

Capsaicin (8-methyl-N-vanillyl-6-nonenamide) is an active component of C. annum L. Capsaicin can irritate and cause a burning sensation in tissues when contact occurs. In the pharmaceutical field, capsaicin is also known to have anticancer, diabeti, anti-arthritis and analgesic activity besides having commercial value in the food industry. Ethanol solvents are used because capsaicin can dissolve in polar solvents and have polar varieties. Capsaicin is an alkaloid that has a high solubility in alcohol but is low in the water. Capsaicin is considered an oil with lipophilic properties and is also fat-soluble. Capsaicin has a melting point at 62-65°C and boiling point 220-220°C. Capsaicin is odorless, colorless, and belongs to a group that is soluble in oil, fat, methanol, ethyl acetate, and ethyl alcohol.

Capsaicin levels are influenced by the level of chili maturity. During the chili ripening process, capsaicin levels increase until the synthesis period. In this study, capsaicin levels were more in ethanol extract than in powder form. In the chili powder, there are still many compounds and other residues that can reduce levels of capsaicin. Meanwhile in the ethanol extract obtained high levels because it has been separated and there is no residue from other compounds.

CONCLUSION
It can be concluded that the ethanol extract of C. annum L. had a greater capsaicin level than in the powder form. The TLC method showed the capsaicin standard was 1020 µg/ml.

ACKNOWLEDGMENTS
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CONFLICT OF INTERESTS
All authors declare that they have no competing interests.

REFERENCES

Table 1: The capsaicin level in C. annum L. analyzed using TLC method

<table>
<thead>
<tr>
<th>Sample</th>
<th>Weight (g)</th>
<th>Amount spotting in the sample</th>
<th>Capsaicin level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(µg)</td>
<td>µg/ml</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Area</td>
<td>µg (%)</td>
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<tr>
<td>Powder</td>
<td>0.1028</td>
<td>51.40</td>
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<tr>
<td></td>
<td>0.1031</td>
<td>51.55</td>
<td>0.186</td>
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<td>Ethanol extract</td>
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<td>21.26</td>
<td>0.437</td>
</tr>
<tr>
<td></td>
<td>0.1049</td>
<td>20.98</td>
<td>0.341</td>
</tr>
</tbody>
</table>

Figure 1: Linear regression curve with capsaicin standard 1020 µg/ml
Figure 2: The capsaicin area in *C. annum* L. standard using TLC method

Figure 3: The capsaicin area in *C. annum* L. powder using TLC method

Figure 4: The capsaicin area in *C. annum* L. ethanol extract using TLC method