

## Abstract

PCOS is a hormone health problems in women who are in their reproductive years, where there are twelve or more follicles with the diameter size is 2-9 mm (PCO). The follicle detection is still done manually by a doctor so that the necessary system that can automatically detect follicles. Therefore in this research, designed an automated system to detect PCO by ultrasound image using otsu threshold method and stereology. Otsu method is the optimal method in the determination of threshold that will be used to get the morphology of follicles. Stereology is a branch of mathematics used to calculate number and diameter of follicles. The test results were obtained from a comparison of doctor validation shows that this system has a sensitivity value 89%, specificity of 11%, and error rate (MAPE) follicle size detection for 32% when using scalar value 4 in image brightness process, using otsu threshold and watershed method with laplacian filter in segmentation process, and using stereology in classification of PCO process.

**Keywords:** PCO, follicle, ultrasound image, otsu threshold, stereology