

**ANTIBACTERIAL ACTIVITY FROM COB,
HUSK AND SILK OF CORN (*Zea mays*)**

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ABSTRACT

ANTIBACTERIAL ACTIVITY FROM COB, HUSK AND SILK OF CORN (*Zea mays*)

Therapeutic ability expressed by plants has been extensively studied for drug discovery towards an array of illnesses. As supported by literature review, corn was considered as an important herb used by many to give health impacts. The study arose due to significant amount of waste of corn processing and worsened by the open burning as disposal method used which caused air pollution, thus it was a waste to discard the explants without knowing the antibacterial potential the extracts might have. The significances of the study were to discover potentially new antibacterial applications from the extract of *Zea mays* cob, husk and silk as well as to enable the investigation of new phytochemical compounds with ability to curb the growth of pathogenic bacteria and to maximize the utilization of corn waste which otherwise cause air pollution due to improper disposal. A research was carried out on corn (*Zea mays*) cob, husk and silk that were obtained from Sungkak Corn Farm, Kuala Pilah, Negeri Sembilan in order to determine the antibacterial activity against *Staphylococcus aureus* and *Salmonella typhimurium*. The antibacterial activity of these three plant extracts were analyzed through the development of three methods, which were disc diffusion, minimum inhibition concentration (MIC) and time kill study. Based on data analysis obtained from disc diffusion, the highest zone of inhibition was 22 ± 2.517 mm at 50 mg/mL from the silk extract against *Salmonella typhimurium* and the smallest inhibition zone was 12 ± 1.000 mm at 12.5 mg/mL concentration of silk extract against *Staphylococcus aureus*. One concentration of each extract from cob, husk and silk for each bacterium with the highest zone of inhibition was chosen in order to proceed with MIC. The chosen concentrations against *Staphylococcus aureus* were known to be 200 mg/mL for cob, husk and silk extract. As for *Salmonella typhimurium*, the chosen concentrations were known to be 25 mg/mL for cob extract, 12.5 mg/mL for husk extract and 50 mg/mL for silk extract. As for MIC, the least extract concentration which indicated low level of turbidity was at 100 mg/mL of husk extract against *Staphylococcus aureus* and 25 mg/mL of cob extract against *Salmonella typhimurium*. As for time kill study, husk and cob extract actively killed *Staphylococcus aureus* and *Salmonella typhimurium* at 8 hours. The results obtained provide the evidence that the corn extract can be exploited on its antibacterial potential for the development of antibacterial drug used in medicinal field in future.