CRUDE EXTRACT OF *Xestospongia* sp. AND IT'S ANTIMICROBIAL ACTIVITY ON PATHOGENIC BACTERIA

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2008

Crude extract of xestospongia sp. and its antimicrobial activity on pathogenic bacteria / Suraya Gunawan.

Lihat sebelah

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PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Crude Extract of *Xestospongia* sp. and It's Antimicrobial Activity on Pathogenic Bacteria oleh Suraya Binti Gunawan, No.Matrik UK 12594 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Biologi Marin), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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ACKNOWLEDGEMENTS

First of all, I would like to give all thanks and praise to Allah s.w.t for His blessing of good health and strength for me to accomplish this final year project. I would like to gratefully acknowledge the peer reviewers who pointed out glaring errors, eliminated trivia, and added useful information. They were my first supervisor, Dr Ahmad Shamsuddin and my co-supervisor Dr Zainudin Bachok.

I would like to take this opportunity to give my sincere thanks to the individuals who helped me completed this final year project paper, through their files and generously provided illustrative materials especially, Dr Najiah and Dr Habsah. A special thank to Encik Luqman Hakim and En. Che Mohd. Zan Husin for their help during laboratory work and advices.

A special thank for my beloved father, Gunawan bin Pono, for his sincerely accompaniment prayers and support. For my sweet siblings, thanks for your understanding of my future undertaking and I really appreciate your cares. I would like to thank my fellow coursemate especially, Kumari Geetha, Siti Asma', Shafarini, Sellinna, Kamaliah and to all individuals who had help directly or indirectly lend me a helping hand.

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UMT	-	University Malaysia Terengganu
g	-	gram
mg/ml	-	milligram/milliliter
μg	-	microgram
°C	-	degree
mm	-	millimeter
ml	-	milliliter
NA	-	Nutrient agar
CFU/ml	-	colony forming units/milliliter
PBS	-	Phosphate buffered saline
NCCLS	-	National Committee for Clinical Laboratory Standards

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ABSTRACT

Antimicrobial activities of *Xestospongia testudinaria* on pathogenic bacteria were investigated. The sponge has been collected from Pulau Bidong and extracted using methanol, ethanol and chloroform. The antimicrobial activity was carried out using Disc Diffusion Methods on four strains of Gram-positive bacteria, *Bacillus cereus*, *Staphylococcus aureus*, *Bacillus subtilus*, *Enterococcus faecalisa* and four Gram-negative bacteria, *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhimurium*, and *Klebsiella pneumonia*. Bacteria inhibition process depends on the types of the crude extract and the types of the bacteria The methanol and chloroform extracts were found to inhibit the growth of three Gram-positive bacteria and one Gram-negative bacteria while the ethanol extracts inhibit the growth of two gram positive bacteria and one gram negative bacteria. The methanol extracts at concentration of 500 mg/ml showed the highest activities against the pathogenic bacteria. Range of diameters for the extracts inhibition zones for bacteria growth are between 7 to 15 mm for concentration of 100, 200 and 500 mg/ml. *Xestospongia testudinaria* has been approved to contained some bioactive compound which positive against pathogenic bacteria.

PENGESKTRAKKAN MENTAH *Xestospogia* sp. DAN AKTIVITI ANTIBAKTERIANYA KE ATAS PATOGENIK BAKTERIA

ABSTRAK

Kajian mengenai aktiviti antibakteria *Xestospongia testudinaria* telah dijalankan. Sampel telah dikumpul dari Pulau Bidong dan diekstrak dengan menggunakan metanol, etanol dan klorofom. Ujian antibakteria dijalankan dengan menggunakan kaedah pembauran cakera ke atas empat bakteria gram positif, *Bacillus cereus*, *Staphylococcus aureus*, *Bacillus subtilus*, *Enterococcus faecalisa* dan empat bakteria gram negatif, *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhimurium*, and *Klebsiella pneumonia*. Proses perencatan pertumbuhan bakteria bergantung kepada jenis ekstrak mentah dan jenis bakteria. Ekstrak metanol dan klorofom didapati berjaya merencat pertumbuhan tiga bakteria gram positif dan satu bakteria gram negatif sementara ekstrak etanol berjaya merencat pertumbuhan dua bakteria gram positif dan satu bakteria gram negatif. Ekstrak metanol pada kepekatan 500 mg/ml menunjukkan aktiviti paling tinggi dalam melawan patogenik bakteria. Julat diameter bagi zon perencatan pertumbuhan bakteria antara 7 hingga 15 mm bagi kepekatan 100, 200 dan 500 mg/ml. *Xestospongia testudinaria* telah dibuktikan mempunyai kompound bioaktif di mana positif melawan patogenik bacteria.