Production and purification of polysaccharide from marine bacterium isolated from marine sponge, Xestospongia sp. / Norliana Mohd Rosli.

Lihat sebalah

PRODUCTION AND PURIFICATION OF POLYSACCHARIDE FROM MARINE BACTERIUM ISOLATED FROM MARINE SPONGE, *Xestospongia* sp.

By
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Research report submitted in partial fulfillment of the requirement for the degree of Bachelor of Science (Marine Biology)

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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:
Production and purification of polysaccharide from marine bacterium isolated from marine sponge, *Xestospongia* sp. oleh Noma binti Yusof, No .Matrik UK10700 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukan 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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LIST OF ABBREVIATIONS

SSW	Sucrose Sea Water
NaCl	Sodium Chloride
SIM	sulfide indole motility
MR	Methyl Red
VP	Voges-Proskauer
GF/F	Whatman glass microfiber filter
5B	Advantec filter paper
PC	paper chromatography
HPLC	high performance liquid chromatography
ELCD	evaporation light scattering detector
URE	Urea
ADH	Arginine
ODC	Ornithine
LDC	Lysine
TET	Aliphatic thiol
LIP	Fatty acid ester
KSF	Sugar aldehyde
SBL	Sorbitol
GUR	p-Nitrophenyl-β,D-glucoronide

ONPG	o-Nitrophenyl-βgalactoside
βGLU	p-Nitrophenyl-β,D-glucoside
BXYL	p-Nitrophenyl-β,D-xyloside
NAG	p-Nitrophenyl-N-acetyl-β,D-glucosaminide
MAL	Malonate
PRO	Proline – β- naphthylamide
GGT	γ-Glutamyl β-naphthylamide
PYR	Pyrrolidonyl-b-naphthylamide
ADON	Adonitol
IND	Trytophane
OXI	Oxidase
M	molar
µL	microliter
nm	nanometer
glc	glucose

LIST OF APPENDICES

ABSTRACT

The marine sponge, *Xestospongia* sp. was used in study of the production and purification of polysaccharides from marine bacterium isolated from it. The bacterium that isolated from the sponges had been carried out in the investigation of their culture, morphological then identify the bacterium. This study also identified the chemical composition of the polysaccharides that produced by isolated bacterium isolated from *Xestospongia* sp. RapID^{TM} ONE Plus System (REMEL, USA) was used in identification of isolated bacterium then namely as *Enterobacter cloacae* after the biochemical test were carried out. The entire biochemical test characterized the characteristics of the bacterium. The average yield of the crude polysaccharide isolated from *Enterobacter cloacae* was 624.5 mg per 1 L of the medium and the average yield of acidic polysaccharide was 241.0 mg per 1 L medium. Elution profile of the acidic polysaccharide on DEAE-cellulose columns shows the highest peak occurred at 0.4 M NaCl while there are no peak occurs at 0 M NaCl. The determination of chemical composition in the bacterium was performed by using paper chromatography (PC) and High Performance Liquid Chromatography (HPLC).For PC same sugar composition whether in crude or acidic polysaccharide was presence which is arabinose, galactose and maltose Results for HPLC chromatogram of hydrolyzed acidic polysaccharide with 2 M HCl containing glucose, arabinose, galactose and maltose. However, the result for crude polysaccharide gave only glucose, arabinose and galactose.