part 4

by Part 4 44444

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PART 4: **Other techniques for test of carbohydrate or mucosubstance components.**

Student's Name

Institutional Affiliation

Course Name

Professor's Name

Due Date

Test	Principle	Materials	Procedure	Observation
Alcian Blue	Alcian Blue dye is basic in nature containing copper giving it blue color. The stain molecules are positively charged and interact with negatively charged ions(Saucedo, 2020).Therefore, it stains the acidic mucosubstances that are sulfated and carboxylated. It forms a salt bridge with the	-Tissue sample -Xylene -Alcian blue solution -Acetic acid - nuclear fast red - microscope	The tissue is deparaffinized and washed under running distilled water. Section of the tissue is stained with alcian blue for about 30 minutes. After staining, the tissue is washed with running distilled water to remove the extra stain. Nuclear fast red is added as a counterstain for 5 minutes. The section is washed again for about one minute. The	The nuclei will be stained from pink to red while for mucosubstance will be blue in color and cytoplasm-stained pale pink color.

	mucosubstances.		section is dehydrated, cleared and mounted on a microscope for observation.	
Iodine	The polyiodide ions within the iodine forms a colored complex with glucose residues such as amylase, dextrin, and glycogen. The colored adsorption complex formed depend on the type of carbohydrate used. Amylase forms a blue-	Distilled water Slides Glycerin jelly Iodine potassium solution Microscope Sample tissue	The tissue is sliced as thin as possible and washed under running distilled water. The sample tissue is placed in iodine-potassium solution for a period of two minutes. The tissue section is rinsed with distilled water to remove excess of iodine potassium solution. The	A blue-black or deep blue color is observed. It depends on the type of carbohydrates used in the procedure.

	black solution, dextrin form black and glycogen reddish-brown. Amylose in starch reacts with polyiodide ion forming a complex of deep blue color (Elzagheid, 2018).		tissue is mounted on glycerin jelly for observation on microscope.	
Iron diamine	Diamine oxidizes itself in the presence of ferric chloride staining the O-sulfate esters(Susem, E.2021).	Sample tissue Absolute alcohol Xylene Disodium hydrogen phosphate Slide N, N-dimethyl-p-phenylenediamine	The tissue is deparaffinized and hydrated using an absolute alcohol. 1N HCl is heated and the section is hydrolyzed into the solution for a period of 5 minutes. The	Black-brown color is observed for mucosubstance.

			tissue is washed under running water for 5 minutes. The section is	
Hales colloidal iron method	At a very low pH, sulfate and carboxyl containing substances absorbs the colloidal ferric ions. Then Prussian blue stains ferric absorbed substance to blue (Renshaw, 2018).	Tissue sample Perl's solution Acetic acid Colloidal iron suspension Potassium ferrocyanide	The tissue sample is deparaffinized and then rinsed with distilled water. The slides are rinsed in the acetic acid again. The tissue sample is then placed in a colloidal solution for 15-30 minutes, then rinsed three times with acetic acid. The tissue sample	The acid mucopolysaccharides stained in deep blue color which indicates the presence of glycoproteins.

			is then placed in Perl's solution for 20 minutes. Then, washed with distilled water to remove the entire extra solution and then dehydrated.	

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