

DEDICATION

To the soul of Aisha

To my parents for their endless love,
support and encouragement

To my husband who has been a great
source of motivation and inspiration

To my brothers and sisters

To my lovely kids Ahmad &Hiba

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First of all I thank God for making my entire wild dream true.

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Abstract:

This study was conducted in Sudan University of Science and Technology . During the period from January 2011 to December 2012. To assess the effect of tissue fixation temperatures on subsequent histochemical staining.

Rabbit samples were collected to examine the influence of varying fixatives temperatures on the quality of staining of some rabbit organs include lung to demonstrate reticular fiber using Gordon and Sweets, tongue to demonstrate collagen fibers using Van Geison's stain, aorta to demonstrate elastic fibers using Verhoeff's stain, large intestine to demonstrate mucin using Alcian blue and liver to demonstrate cell morphology using Erlich's and Weigert's hematoxylin and glycogen using PAS. Specimens were divided into pieces, each sample was fixed in the following fixatives: formal saline, neutral buffer formaldyde, Carnoy's and Bouin's fixative at different temperatures 4 °C , 25° C, 37 °C and 60°C. thereafter, tissues were paraffin - embedded and 5 micron sections were cut using rotary microtome and stained with different histochemical staining includes Ehrlich's hematoxylin, Weigert's hematoxylin, Feulgen, Van Gieson, Gordon and Sweet's, Verhoeff's, Periodic Acid Schiff and Alcian Blue.

For Erlich's hematoxylin, formal saline gave the best result for tissues fixed at 60°C, NBF gave the best results at 37° C and 60°C. For Weigert's hematoxylin, formal saline gave

better results at 37°C, NBF gave better results at 37° C and 4°C. For feulgen stain the best results were obtained at 37°C when fixed in formal saline. And when fixed in neutral buffer formaldehyde, better results were obtained at 37°C. For Van Geison stain , formal saline and NBF the best results obtained at 37° C For Gordon and sweet, Formal saline fixative gave better results at 37°C but NBF gave better result's at 25°C and 4C. For Verhoff's stain, Formal saline fixative gave the best results at 4°C , 37°C and 60°C. NBF gave the best results at 37°C whereas Bouin's and Carnoy's fixative gave the best results at all temperatures. PAS formal saline fixative gave the best results at 4° C but NBF fixative gave better results at 37° C. In alcain blue stain formal saline fixative gave better results at 37°C and 60°C, but the best results were obtained at 37°C when fixed by NBF.

ملخص الأطروحة

أجريت هذه الدراسة في جامعة السودان للعلوم والتكنولوجيا. في الفترة من يناير 2011 إلى ديسمبر 2012. لتقدير أثر درجة حرارة المثبتات على الخطوات اللاحقة لتصبيغ الأنسجة كيميائيا.

تم تحديد تأثير تغيير درجة حرارة المثبتات على نوعية التصبيغ لبعض العينات المأخوذة من أجهزة أرنب تشمل: الرئة لإظهار الألياف الشبكية باستخدام طريقة غوردون وسويت ولسان لإظهار ألياف الكولاجين باستخدام طريقة فإن جيسون والشريان الأورطي لإظهار الألياف المرنة باستخدام طريقة بيرهوف والأمعاء لإظهار الميوسين باستخدام طريقة السيان الأزرق والكبد لإظهار مورفولوجيا الخلايا باستخدام طريقة الايرليخ وبيجيرت هيماتوكسيلين والجليكوجين باستخدام طريقة حمض البيريوديك والشيف، تم تقسيم العينات إلى قطع وكل عينة ثبتت في المثبتات التالية: الفورمالين الملحي ، الفورمالين المدروء، كارنيوي وبوين في درجات حرارة مختلفة شملت 4° ، 25° ، 37° ، و 60° . بعد ذلك، طمرت الأنسجة في شمع البارافين وقطعت إلى 5 ميكرون باستخدام الميكروتوم الدوار وصبغت بأصباغ كيمياء الأنسجة التي تشمل ايرليخ هيماتوكسيلين ، وبيجيرت هيماتوكليلين، فولجن، فان جيسون ، غوردون وسويت، بيرهوف وحمض البيريوديك شيف والأزرق السيان.

في نتائج ايرليخ هيمتووكسيلين: أعطى الفورمالين الملحي أفضل النتائج للأنسجة المثبتة في 37° و 60°. وفي نتائج ويجيرت هيمتووكسيلين: الفورمالين الملحي أعطى نتيجة أفضل في 37° والفورمالين المدرؤ أعطى أفضل النتائج في 37° و 4°. وفي الفولجن: أفضل النتائج التي تم الحصول عليها في 37° عندما ثبت في الفورمالين الملحي . وعندما ثبت في الفورمالين المدرؤ، أفضل النتائج تم الحصول عليها في 37° ، في فان جيسون : أعطى كل من الفورمالين الملحي والفورمالين المدرؤ نتائج أفضل في 37°. في غوردون وسويت: مثبت الفورمالين الملحي أعطى نتائج أفضل في 37° لكن الفورمالين المدرؤ أعطى أفضل نتيجة في 4°. في صبغة بيرهوف: مثبت الفورمالين الملحي أعطى نتائج أفضل في 4°، 37° و 60° والفورمالين المدرؤ أعطى نتائج أفضل في 37° بينما مثبت بوين وكارنوي أعطى نتيجة جيدة في جميع درجات الحرارة. وفي حمض البيريوديك والشيف: الفورمالين الملحي أعطى أفضل نتيجة في 4° والفورمالين المدرؤ أعطى نتائج أفضل في 37° . في الازرق السيان: مثبت الفورمالين الملحي حصل على نتائج جيدة في 37° و 60° لكن أفضل النتائج تم الحصول عليها في 37° عند استخدام الفورمالين المدرؤ.

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List of abbreviations

NBF: neutral buffer formalin.

PAS: periodic acid schiff.

ECM: Extracellular matrix

GAG: glucosaminoglycans.

SPSS: Statistical Package For Social Science