

J4/1446 1- Fixation To avoid tissue digestion by enzymes present within the cells (autolysis) or bacteria and to preserve cell and tissue structure, pieces of organs begin to be treated as soon as possible after removal from the body The initial treatment-fixation-usually involves immersion in solutions of stabilizing or cross-linking compounds caled fixatives through Because a fixative must fully diffuse the tissues to preserve all cells) tissues are usually cut into small fragments before fixation to facilitate penetration and better ensure tissue preservation Intravascular perfusion of fixatives can be used with some organs or laboratory animals. Because the fixative in this case rapidly reaches the tissues through the blood vessels, fixation is improved One fixative widely used for light microscopy is formalin a buffered isotonic solution of 37% formaldehyde The chemistry of the process involved in fixation of many tissue components is complex and not always well understood Both formaldehyde and glutaraldehyde, a fixative often used for electron microscopy, react with the amine groups (NH) of tissue proteins, preventing their degradation. Glutaraldehyde reinforces this fixing activity by being a dialdehyde, capable also of cross-linking proteins With the greater magnification and resolution of very small structures in the electron microscope, fixation must be done carefully to preserve "ultrastructural detail. Toward that end, a double-fixation procedure, using a buffered glutaraldehyde solution followed by immersion in buffered osmium tetroxide, is a standard method to prepare tissue for such studies Osmium tetroxide preserves (and stains) membrane lipids as well as proteins اور منہ OsmiuntetJ4/1446 1- Fixation To avoid tissue digestion by enzymes present within the cells (autolysis) or bacteria and to preserve cell and tissue structure, pieces of organs begin to be treated as soon as possible after removal from the body The initial treatment-fixation-usually involves immersion in solutions of stabilizing or cross-linking compounds caled fixatives through Because a fixative must fully diffuse the tissues to preserve all cells) tissues are usually cut into small fragments before fixation to facilitate penetration and better ensure tissue preservation Intravascular perfusion of fixatives can be used with some organs or laboratory animals. Because the fixative in this case rapidly reaches the tissues through the blood vessels, fixation is improved One fixative widely used for light microscopy is formalin a buffered isotonic solution of 37% formaldehyde The chemistry of the process involved in fixation of many tissue components is complex and not always well understood Both formaldehyde and glutaraldehyde, a fixative often used for electron microscopy, react with the amine groups (NH) of tissue proteins, preventing their degradation. Glutaraldehyde reinforces this fixing activity by being a dialdehyde, capable also of cross-linking proteins With the greater magnification and resolution of very small structures in the electron microscope, fixation must be done carefully to preserve "ultrastructural detail. Toward that end, a double-fixation procedure, using a buffered glutaraldehyde solution followed by immersion in buffered osmium tetroxide, is a standard method to prepare tissue for such studies Osmium tetroxide preserves (and stains) membrane lipids as well as proteins اور منہ Osmiuntet يصبحها OsniamJ4/1446 1- Fixation To avoid tissue digestion by enzymes present within the cells (autolysis) or bacteria and to preserve cell and tissue structure, pieces of organs begin to be treated as soon as possible after removal from the body The initial treatment-fixation-usually involves immersion in solutions of stabilizing or cross-linking compounds caled fixatives through Because a fixative must fully diffuse the tissues to preserve all cells) tissues are usually cut into small fragments before fixation to facilitate penetration and better ensure

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