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UDC: 620.187:539.26

METHOD: CHEMICAL AND MORPHOLOGICAL STUDYING OF PARAFFIN SECTIONS

Key words: tissue paraffin sections, morphological analysis, scanning electron microscopy.

ABSTRACT. Background. Interactions between heavy metals and cells are diverse, but can be divided into 3 major categories: 1) metals are essential for metabolism. Toxic metals can stop metabolic reactions; 2) metals can accumulate in cells: intracellular uptake and binding; 3) metals that undergo biochemical transformation (inclusive of leaching). The main objectives in this study were to develop a appropriate methodology to allow histological sections scanning electron microscopy analysis of tissue samples and to apply this and a number of other analytical techniques, to investigate the nature of calcific and heavy metals deposits in tissues and cells. **Objective.** Aim of this study was to find if scanning electron microscopy can be used in chemical composition of tissue. **Methods.** For recognition of various types of tissue paraffin sections and the rate of accumulation of heavy metals in it was used scanning electron microscope equipped with energy dispersive X-ray spectroscope. **Results.** Energy dispersive X-ray spectroscopy analysis revealed that inorganic phases of tissue paraffin sections were available for chemical analysis. Scanning electron microscopy were used for morphological analysis of paraffin sections. **Conclusion.** Rationale and description of the new method of chemical and morphological studying of paraffin sections presented in the article. Scanning electron microscope equipped with energy dispersive X-ray spectroscope can be used in chemical composition of tissue.

Received: 12.05.2014
Accepted: 03.06.2014

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Citation:
Kuzenko YV. Method: chemical and morphological studying of paraffin sections. Morphologia. 2014;8(2):89-92.

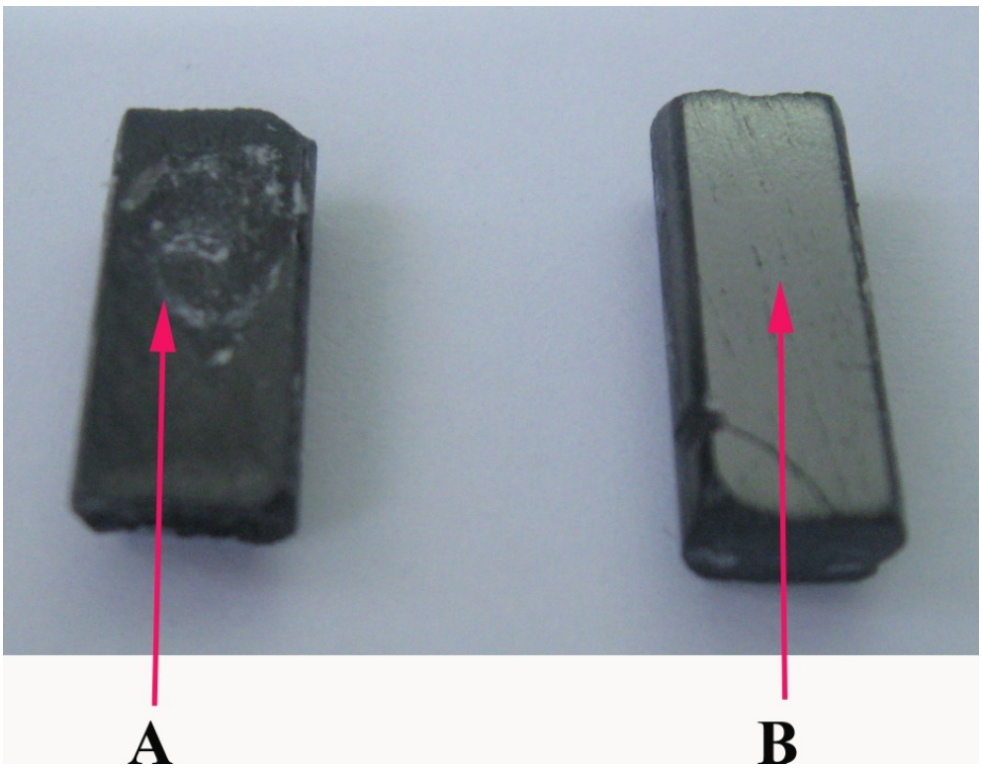

Fig. 1. A – graphite plates with tissue sections, B – graphite plates without tissue sections.

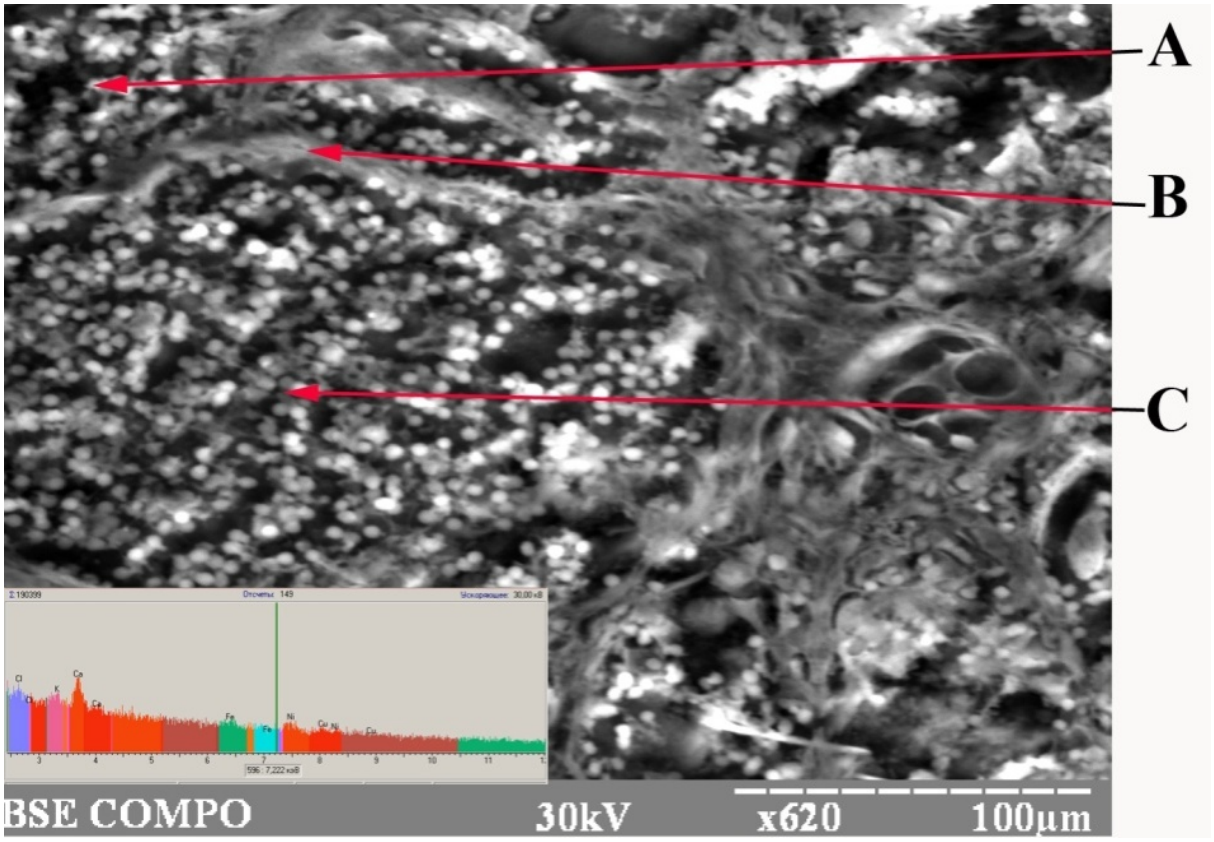

Fig. 2. Pyogenic epulis. A – hemorrhage and cell infiltrates, B - vessel wall, C – vascular spaces.

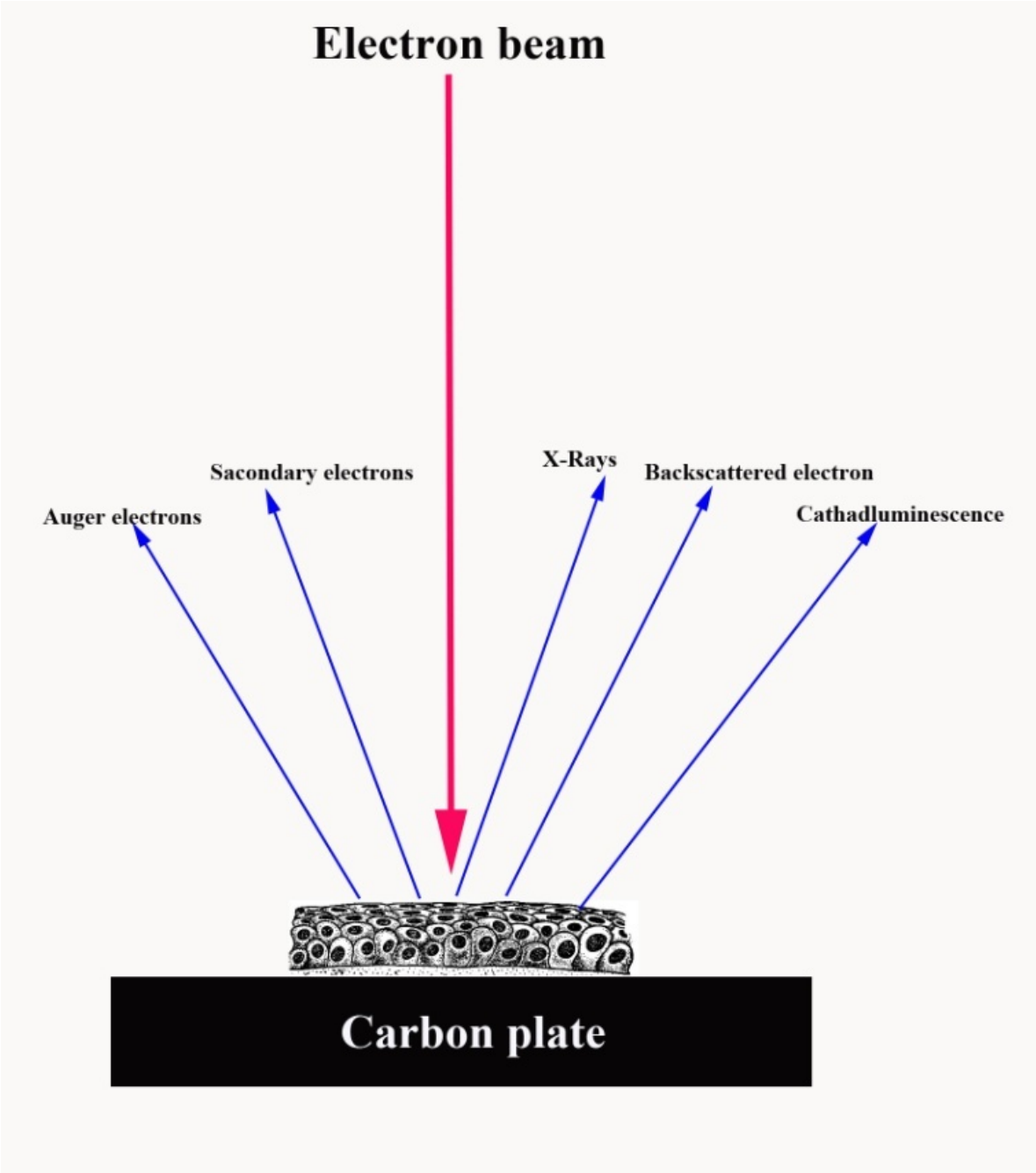

Fig. 3. Interaction scheme of the electron beam with the tissues.

References:

1. Yilmaz F, Ozdemir N, Demirak A, Tuna AL. Heavy metal levels in two fish species Leuciscus cephalus and Lepomis gibbosus. Food Chem. 2007;100: 830-35.

2. Anderson HC. Calcific diseases: A concept. Arch Pathol Lab Med. 1983;107:341-48.

3. Fox DA, Campbell ML, Blocker YS. Func-tional alterations and apoptotic cell death in the retina following developmental or adult lead exposure. Neurotoxicology. 1997;18:645-64.

4. Bressler J, Kim KA, Chakraborti C, Goldstein G. Mechanism of lead neurotoxicity. Neurochem Res. 1999;24:595-600.

5. Humphreys DJ. Effects of exposure to exces-sive quantities of lead on animals. Brit Veterin J. 1991;147:18-30.

6. Khalil-Manesh F, GonikHc, Weilerej, et al. Heavy metal concentrations in human eyes. Am J ophthalmol. 2004;139(5):888-93.