



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1412115>Available online at: <http://www.iajps.com>

Research Article

**EVALUATION OF THE EFFECTIVENESS OF THE METHOD  
OF STAINING AND STORAGE OF ANATOMIC  
PREPARATIONS CONTAINING THIN NERVES**<sup>1</sup>Y.L. Vasil'ev, <sup>2</sup>S.A. Rabinovich, <sup>3</sup>S.S. Dydykin, <sup>4</sup>K.S. Asaturyan, <sup>5</sup>E.V. Ivanova, <sup>6</sup> T.A. Bogoyavlenskaya<sup>1</sup>Associate professor, Peoples' Friendship University of Russia (RUDN), department of propaedeutic of dental diseases, Moscow<sup>2</sup>Head of the department, professor, A.I. Evdokimov Moscow state university of medicine and dentistry, dental anesthesiology department<sup>3</sup>Head of the department, professor, Sechenov University, operative surgery and topographic Anatomy Department, Moscow<sup>4</sup>Researcher, Sechenov University, operative surgery and topographic Anatomy Department, Moscow<sup>5</sup>Professor, Russian Medical Academy of Postgraduate Education, therapeutic dentistry department, Moscow<sup>6</sup> Associate professor, Sechenov University, operative surgery and topographic Anatomy Department, Moscow**Abstract:**

*One of the most urgent problems of applied morphology is to make the teaching of normal anatomy vivid. In the educational process of the department of human anatomy it is important not only to study book or computer drawings and schemes, but to demonstrate organs taken directly from the human body while preserving all the anatomical and functional features of their structure. To increase the shelf life of museum and demonstration drugs, for a more intense coloring of the intra- and extra-nerve nerves, we proposed a method for staining and storing bone preparations containing thin nerves. The proposed method allowed us to achieve not only a stable coloration of the nervous tissue and accompanying blood vessels inside the bone preparation without staining adjacent tissues, but also increased the shelf life of the drug outside the liquid (glycerin). The drugs observed by us for 5 years retain their color and do not undergo disintegration. Evaluation of the results of the introduction of the storage method allowed adding a modification in the form of storage conditions.*

**Keywords:** *anatomy, preservation, mandible, trigeminal nerve***\*Corresponding Author:**

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Please cite this article in press Y.L. Vasil'ev et al., *Evaluation of the Effectiveness of the Method of Staining and Storage of Anatomic Preparations Containing Thin Nerves.*, Indo Am. J. P. Sci, 2018; 05(09).

**INTRODUCTION:**

One of the most urgent problems of applied morphology is to make the teaching of normal anatomy vivid. In the educational process of the department of human anatomy it is important not only to study book or computer drawings and schemes, but to demonstrate organs taken directly from the human body while preserving all the anatomical and functional features of their structure. Natural preparations of organs and parts of the human body should be demonstrative and retain for a long time the inherent form and appearance. Anatomists are constantly faced with the task of rational and economical use of limited material at their disposal for the manufacture of high-quality anatomical preparations.

Quality preservation of corpses and separate organs, improvement of methods of their storage is necessary for rational use of cadaveric material. Preservation of cadaveric material must meet a number of conditions. Preparations should retain their usual form and, if possible, consistency. For demonstration drugs, it is desirable to preserve the natural or close to it color of the tissues. The composition of the preserving liquid should not have a harmful effect on working with cadaveric material, and, importantly, it should be cheap. However, researchers have not yet succeeded in developing a unified method that best meets the often mutually exclusive requirements.

Long-term storage of museum drugs in liquids often leads to a change in their color, which exposes the object's value of the object. Poor primary fixing of the material, fixing a large number of objects in disproportionately small volume of dishes, insufficient observance of the time of drug stay in solutions, poor quality of solutions, insufficient freshness, improper selection of fixing solution ingredients, lack of assembly of preparations and a number of other causes lead to turbidity of solutions and deterioration of the appearance of the preparation.

In the course of our studies of the bony structures of the lower jaw, it became necessary to store and

demonstrate preparations containing fine nerves. Existing methods of conservation, unfortunately, do not always fully meet the needs due to low visualization of intraosseous objects. To identify the inside and extraosteal nerves, the Stefanets method is known, which is used on total anatomical preparations. However, despite the good result, this method has a number of drawbacks among which the need to use a fresh corpse whole. Thus, according to Stefanz's method, with observance of all proportions, one can get a golden pink color of the nerves, the vessels acquire a brownish-black color, and the surrounding bone tissue is intensely lilac in color. The disadvantage of this method is that when staining bone preparations containing nerve fibers, both the pronounced staining of the entire preparation and the rapid decolorization of the preparation during the first two months of storage in glycerin, the color of which varies from transparent to saturated pink. This leads to a decrease in the quality of treatment of anatomical and topographic features of the location of blood vessels and nerves, and also shortens the period of storage and operation of the preparation.

**Goal.** To improve the storage of museum and demonstration preparatons, for a more intense coloring of the intra- and extrabone nerves, group of authors proposed a method (RUS 2438307 13.04.2010) for staining and storing bone preparations containing thin nerves.

The essence of the method was that the bone preparation obtained from the fresh corpse was cleaned of soft tissues, washed with hot running water, the preparation was fixed for 12 hours in a 5% solution of sulfosalicylic acid, and then transferred in a dark room to a Schiff reagent prepared according to a standard methodology; the drug is kept for 6 hours in the dark, then washed in sulphurous water and for 120-140 seconds. they lower in 60% a solution of ethyl alcohol; further the preparation is dried for 120-140 seconds. and per day fixed in glycerin in the dark, after which the drug is removed and stored in a dry form in a glass container, to the bottom of which a thin layer of glycerin is poured (Figure 1).

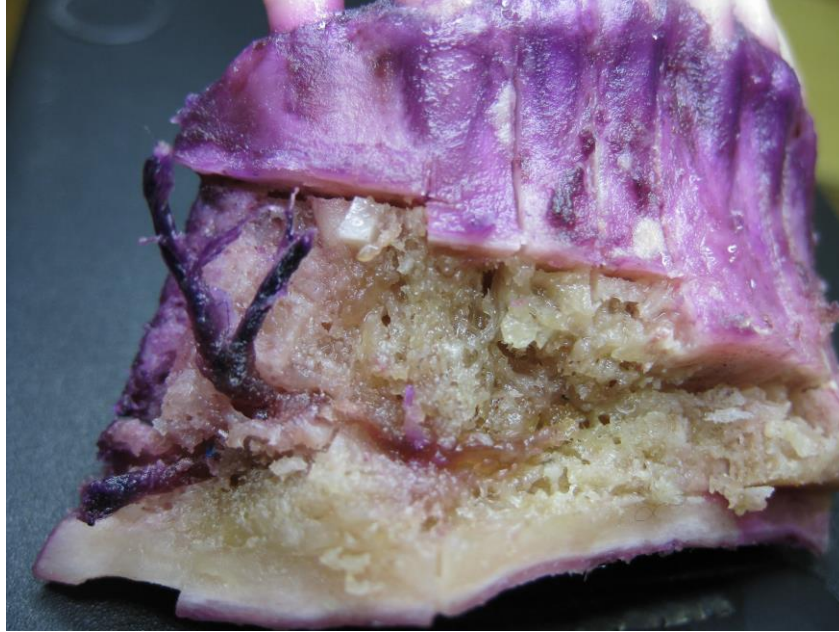


Figure 1. Preparation of the mandible after staining.

#### RESULTS AND DISCUSSION:

The proposed method allowed us to achieve not only a stable coloration of the nervous tissue and accompanying blood vessels inside the bone preparation without staining adjacent tissues, but also increased the shelf life of the drug outside the liquid

(glycerin). The drugs observed by us for 5 years retain their color and do not undergo disintegration. Evaluation of the results of the introduction of the storage method allowed adding a modification in the form of storage conditions (Figure 2).



Figure 2. The preparation of the mandible after 7 years of storage in dry form

We believe that exposure of a dry preparation for three days in a glass container, at the bottom of which a thin layer of glycerin is poured, once every six months, will extend the life of the facility.

#### REFERENCES:

1. Aymaletdinova Z.T et al., Features of the Clinical and Treatment of Degenerative Dystrophic Diseases

of the Cervical-Brachial Region in the Dentists (The State of the Issue). *Indo Am. J. P. Sci*, 2018; 05 (08)

2. Romeis B. *Microscopic technique*. - M., 1954. - P.297.

3. Boguslavskaya T.B. *The preparation of topographic anatomical preparations and the technique of some anatomical studies*. - Moscow, 1958. - 204 s

4. Vasiliev Yu.L., Rabinovich SA, Tsybulkin AG, Kopytov AA A method of staining and storing bone preparations containing thin nerves. Patent for invention RUS 2438307 13.04.2010.
5. Megvinov L.S. Preparation of anatomic museum specimens while preserving their color and consistency. *Arkh Patol.* 1981, 43 (8): 71-2.
6. Sandhyamani S., Sindhu J.K., Sriramachari S. Re-coloration of museum samples: a modification of Romhanyi's technique based on pyridine / nicotine hemochromogen reactions. *Virchows Arch.* 2005 Jul; 447 (1): 94-8. Epub 2005 Jun 14. DOI: 10.1007 / s00428-005-1273-8.