

Date: 5th October-2026

**ANALYSIS OF POSITIVE RESULTS OBTAINED IN THE DETECTION OF
SEMEN STAINS DURING FORENSIC BIOLOGICAL EXAMINATION**

Ashurova N.D.

Khasanova M.A.

Tashkent State Medical University (Uzbekistan, Tashkent)

e-mail: m.xasanova71@gmail.com

INTRODUCTION

During the forensic examination of physical evidence, forensic biologists do not always take into account the specific characteristics and requirements of other types of examinations. In such cases, examination is permissible only when the quantity of biological material is sufficient. However, stains of blood, semen, or other biological secretions, as well as human tissues found on various items of physical evidence, are often present in very small quantities. Therefore, in order to obtain more accurate information, additional molecular genetic examination of biological materials is performed. Law enforcement agencies often detect blood, semen, and other biological secretions at crime scenes and collect them as physical evidence. Such evidence may contain a considerable amount of information about the perpetrator or victim and can contribute to the identification of an individual through the examination of blood and semen stains, thereby assisting in the identification of the persons involved in the crime.

At present, forensic examination of semen makes it possible to determine the presence and characteristics of blood and spermatozoa in various mixed stains on physical evidence, as well as their species and group affiliation, including in very small stains. The detection of semen stains on physical evidence is not always an easy task, and the identification of semen among other biological secretions remains one of the relevant problems in forensic biological examination.

Aim of the Study the aim of the study was to improve the forensic biological examination of blood and semen in mixed stains of different ages in forensic medical practice.

Materials and Methods. the study material consisted of 36 experimental mixed blood and semen stain samples and stains from 42 items of forensic examination material obtained from the forensic biological laboratory of the Surkhandarya Branch of the Republican Scientific and Practical Center of Forensic Medical Examination during 2016–2020.

A retrospective analysis of archival materials from 2016–2020 was conducted. The seasonal distribution of the detection of semen in mixed stains was analyzed according to the following parameters: the total number of objects examined; the number of objects in which semen was detected; the proportion of objects with detected semen relative to the total number of objects in which semen was identified; and the number of mixed objects in which the presence of semen could not be detected.

Over the previous five years, 7,394 forensic examinations were conducted in the forensic medical laboratory to determine the presence of semen in stains. The total number



Date: 5thOctober-2026



of examined items was 448. Of these, the presence of semen was detected in 2,668 objects (36.1%). In the remaining 4,726 objects (63.9%), it was not possible to establish the presence of semen. Such cases were mainly observed when semen stains were located on wet or moldy fabrics and objects, as well as in soil. In addition, semen was not detected in stains resembling semen on the physical evidence submitted for examination. The positive results obtained in determining the presence of semen stains on physical evidence were also analyzed according to the seasons of the year. The total number of objects submitted to the laboratory, the proportion of objects in which semen was detected relative to the total number of positive findings, as well as the number of objects in which semen was not detected and the reasons for obtaining negative results were assessed.

Analysis of the archival materials by season showed that the largest number of positive results for the detection of semen occurred during the third quarter - 937 cases (35.1%) - and the fourth quarter - 890 cases (33.4%), corresponding to the summer–autumn period. Together, these accounted for 68.5% of all positive cases. In contrast, during the first quarter - 366 cases (13.7%) - and the second quarter - 475 cases (17.8%), corresponding to the winter-spring period, fewer positive results were observed, accounting for 31.5% of all positive cases.

Conclusion. The findings indicate that, in many cases, it was not possible to establish the presence of semen in stains on physical evidence submitted for examination. This was associated primarily with contamination of the stains by perpetrators using gasoline, kerosene, paints, and other substances in an attempt to conceal the crime, as well as with the effects of external environmental factors and other causes. Positive results in the detection of semen in stains on physical evidence were observed predominantly during the summer–autumn seasons, accounting for 68.5% of all positive cases. In comparison, positive results were less frequently observed during the winter–spring seasons, accounting for 31.5% of cases.