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Analysis of gunshot residue of different calibers of country-made and standard firearms on cloth target- Komal Yadav

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Abstract

In India, the trend of country-made firearm is increasing day by day, by the criminals. More than 75% of the crimes are committed using 7.65mm and .315”/8mm calibers of country made firearms, because of easy availability and cheap cost. The manufacturer of country made firearms is not able to manufacture proper firearm due to lack of tools, machining and less expertise. Hence, the investigators are facing lots of difficulties in estimating the accurate range of firing, caliber and whether the country made firearm is used or not. This study may be helpful in determining the range of firing, caliber and type of weapon; whether it is country made or standard firearms by analyzing the dispersion pattern area of gunshot residue, SEM morphology and EDX analysis. This study emphasized on dispersion pattern of gunshot residue deposited on cloth target at different shooting distance (4”, 8” and 12”). Two types of standard and country made firearm i.e. 7.65 mm and .315”/8 mm caliber were used for test firing and ammunition (KF, Kirkee factory, Pune) were used. The result showed that dispersion pattern area of GSR varies in standard and country made firearm as well as in different calibers. SEM micrograph and mean particle size varies in standard and country made firearms as well as in different calibers. EDX analysis of elemental and percentage composition of GSR also varies in standard and country made firearms as well as in different calibers of standard and country made firearms. This study will be helpful in easy disposal of the cases where the range of firing, caliber and category of firearm needs to be ascertained.