IDENTIFICATION AND RECOVERY OF FINGERPRINTS FROM GLASS FRAGMENTS IN MOLOTOV COCKTAIL CASES

SYED AHMAD NAZMI BIN SAYED MOHAMAD

UNIVERSITI TEKNOLOGI MALAYSIA
IDENTIFICATION AND RECOVERY OF FINGERPRINTS FROM GLASS FRAGMENTS IN MOLOTOV COCKTAIL CASES

SYED AHMAD NAZMI BIN SAYED MOHAMAD

A dissertation submitted in partial fulfillment of the requirements for the award of the degree of Master of Science (Forensic Science)

Faculty of Science
Universiti Teknologi Malaysia

JANUARY 2013
Specially dedicated to my beloved family
Ku, Mak, Nadia, Burhan, Fatin and Syafiq. Thank you for your love and support.
ACKNOWLEDGEMENT

Firstly, I wish to acknowledge my main supervisor Associate Professor Dr. Mohd Shahrul Bahari for his support, encouragement and guidance from the very beginning until the end. I would also like to thank my co-supervisors, Superintendent Ng Song Huat from Fingerprint Section, PDRM Forensic Laboratory, Cheras and Assistant Fire Commissioner, Tn. Azlimin Mat Noor from Fire and Rescue Department of Malaysia, Cyberjaya. I am grateful and indebted to them for their sincere, valuable guidance extended to me and for providing me with all the necessary facilities. My appreciation is also extended to Mahadir Mohd Noh and firemen from Fire and Rescue Department of Pandan Indah, Kuala Lumpur, who help me in sampling process, Inspector Syed Faizul Shah from PDRM Forensic Laboratory, Cheras who supervised and guided me at the simulation scene, and En. Puwira Jaya Othman from PDRM headquarters, Bukit Aman, Kuala Lumpur for his knowledge and assistance in the analysis of fingerprints. Also, thank to Associate Professor Dr. Umi Kalthom Ahmad, for her guidance and advices, especially in areas relating to forensic field.

Sincere thank to my dear fellow postgraduates in Forensic Science for their help and encouragement especially to Suriati Abd Latif who helped me in the analysis of fingerprints, Siti Mariani Yusof and Anita Weinheimer who helped me in the sampling process. To my parents, Sayed Mohamad Sayed A Rani and Meriam Malek, thank you for the continuous encouragement and support.

I also would like to thank the Laboratory Assistant En. Mohd Nazri Zainal and Miss Siti Rafezah Mat Emin and UTM for allowing me to use the equipments and the laboratory. In the deepest sense of gratitude, I must thank my beloved family for giving me their blessing to do my thesis here even though they are far. Finally, not to be forgotten to anyone that contributes on this research project whether directly or indirectly. I am sincerely grateful to all of them for their willingness to help and may Allah bless you.
ABSTRACT

Increasing reports on Molotov cocktail cases in the local media has warrant a need for a detailed investigation of the perpetrator of the crime. A study is therefore embarked to compare fingerprint quality recovered from glass fragments of Molotov cocktails. The accelerants used were petrol, kerosene, diesel and motor oil. Different types of accelerant were used to observe the effect of accelerant on the quality of fingerprint recovered from glass fragment of Molotov cocktails. In the study, Molotov cocktails were exploded and glass fragments bearing fingerprint marks were collected and transported back to laboratory for analysis. Prior to fingerprint analysis, soot were removed from glass fragment using three techniques of brushing, NaOH (2 %) wash solution and tape lifting. After soot removal, enhancement fingerprint were done by using methods such as dusting method, superglue fuming method and Small Particle Reagent (SPR) method. Then, fingerprints from glass fragment of Molotov cocktails were identified by manual matching. Powder dusting method was used for sample petrol only because most of glass fragment were obtained in dry condition. Other than that, superglue fuming method was used in majority of sample whether Molotov cocktails were allowed to burn out naturally or the fire was extinguished using water. Small particle reagent method was mostly used for the wet glass fragment. Fingerprints recovered were photographed and were sent for manual matching. Based on the enhancement fingerprint method used, most of the latent fingerprint was developed with various qualities. Based on the percent recovery, SPR method shows the best recovery (43.75 %) at the scale 3 fingerprint, followed by superglue fuming and dusting powder. In manual matching method, percentage success rate in the case where fire of Molotov cocktails was allowed to burn out naturally was 55.56 % while in the case of fire extinguished using water, percentage success rate was 33.33 %. This study also showed that manual matching method of fingerprints recovered from Molotov cocktails with fingerprint obtained from suspect or standard can be done.
ABSTRAK