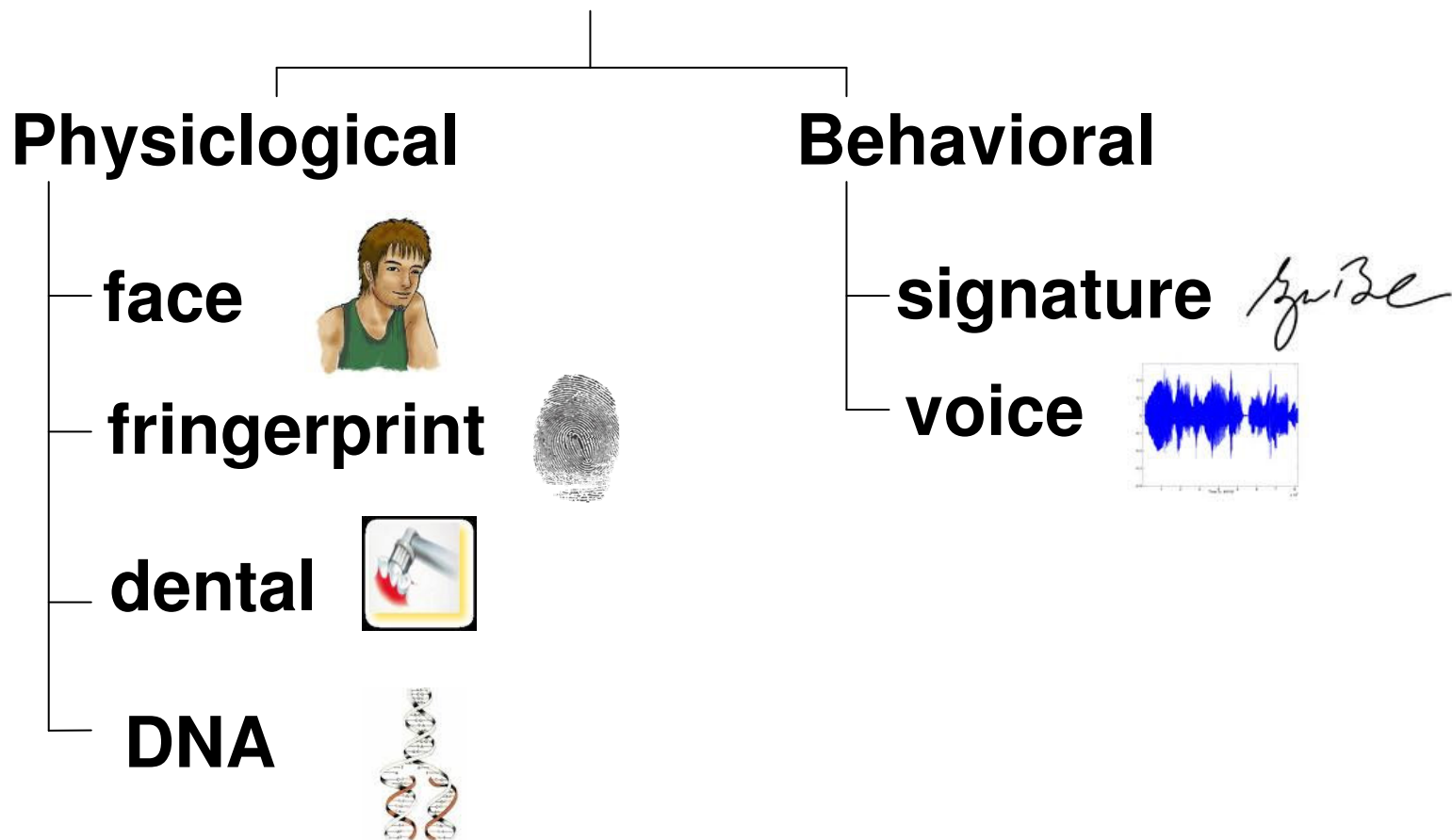


# Lip-print (cheiloscopy)

# Person's identification

## Biometrics



# **Lip-print (cheiloscopy)**

**Many studies have characterized lip prints in order to ascertain their unique features and characteristics**

**Lip print types**

**Forensic applications of the technique**

**Method of acquiring lip impressions at the crime scene**

**1999 : M. Alvarez**

**“The Study of Lip Prints Generated by Permanent Lipstick.”**

**Aim : Latent lip print test results produced by permanent lipsticks  
on different supports at different time a intervals**

**Persistent lipsticks**

**A = Margaret AstorÒ no. 18**

**B = Margaret AstorÒ no. 32**

**C = L’OrealÒ no. 19**

**D = L’OrealÒ no. 24**

**Results after developing latent prints produced by persistent lipstick on different supports at different time a intervals**

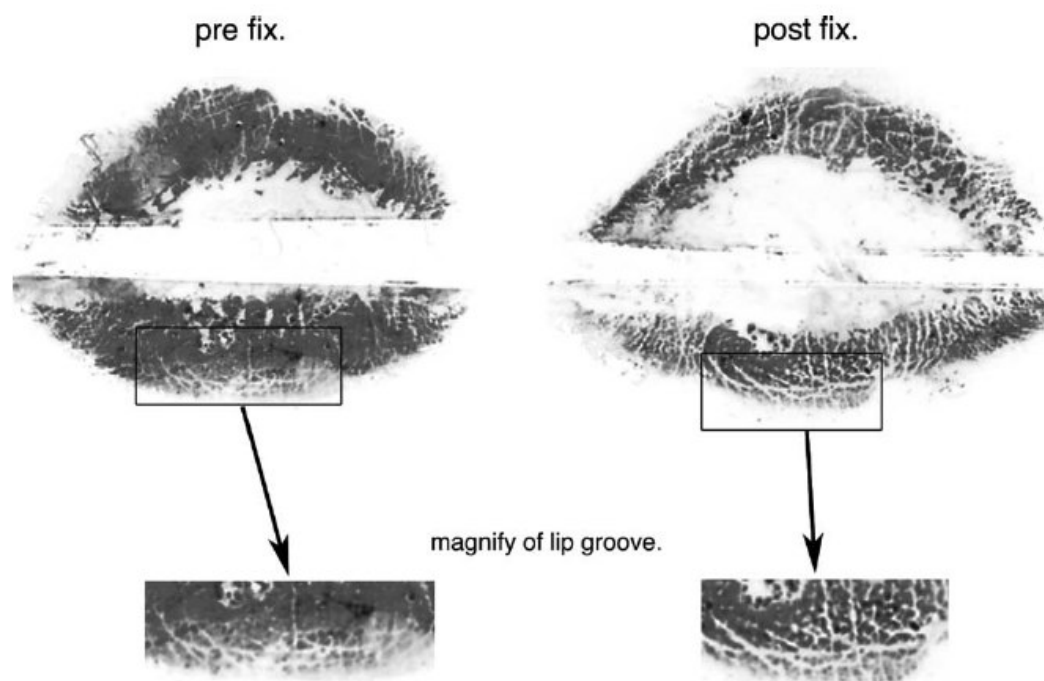
| <b>Support</b>       | <b>Lipstick</b> | <b>Developing time</b> |              |                |                |
|----------------------|-----------------|------------------------|--------------|----------------|----------------|
|                      |                 | <b>2 h</b>             | <b>1 day</b> | <b>15 days</b> | <b>30 days</b> |
| <b>White ceramic</b> | <b>A</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>B</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>C</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>D</b>        | +++                    | +++          | ++             | ++             |
| <b>White ceramic</b> | <b>A</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>B</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>C</b>        | +++                    | +++          | ++             | ++             |
|                      | <b>D</b>        | +++                    | +++          | ++             | ++             |

**Developing intensity: 11high, 11medium, 1low, Ø none.**

**2005 : H. Utsuno et al**

**“Preliminary study of post mortem identification using lip prints”**

**Aim : clarify characteristics of lip prints from cadavers with various causes of death and to determine the effects of fixation on post mortem changes in lip impressions.**



**Morphological patterns of lip prints  
in Saudi Arabia at Almadinah  
Almonawarah province**

**M.A.E. Domiaty et al. / Forensic Science International (2010)**

# **Aim**

- **study in depth the lip prints of Saudi individuals (males and females) in Almadinah Almonawarah province.**
- **to focus attention on lip-print patterns of twins and families**
- **hoping that this study might be of value in the identification process in both civil and criminal issues**



# Subjects

**Saudi residents of Almadinah Almonawarah area**

**females : 540**

**males : 426**

**aged : 18 - 40 years**

**13 identical twins of different ages and 19 families**

# **Recording the lip prints**

**Lip stick : Red or brown, non-persistent, non-glossy, non-metallic**

**Lise Watier or Black Up**

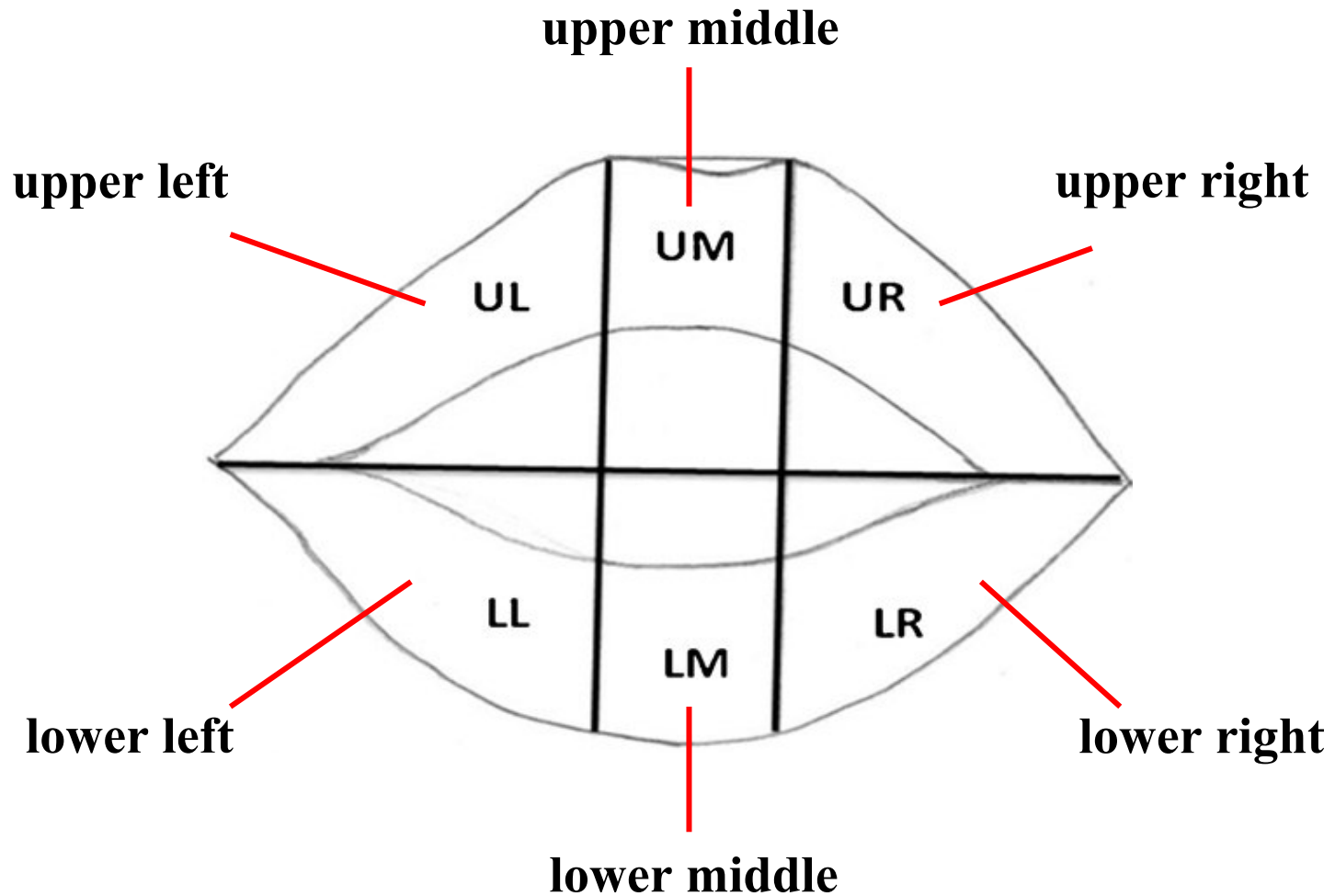
**Support : White papers (white A4 ROCO Premium 80-g copy papers)  
tissue papers (Kleenex)**

**Methods : A thin film of lipstick was applied onto cleaned and dried  
lips, left for 3 min, and then the impressions of the lips  
were taken on the specified papers**

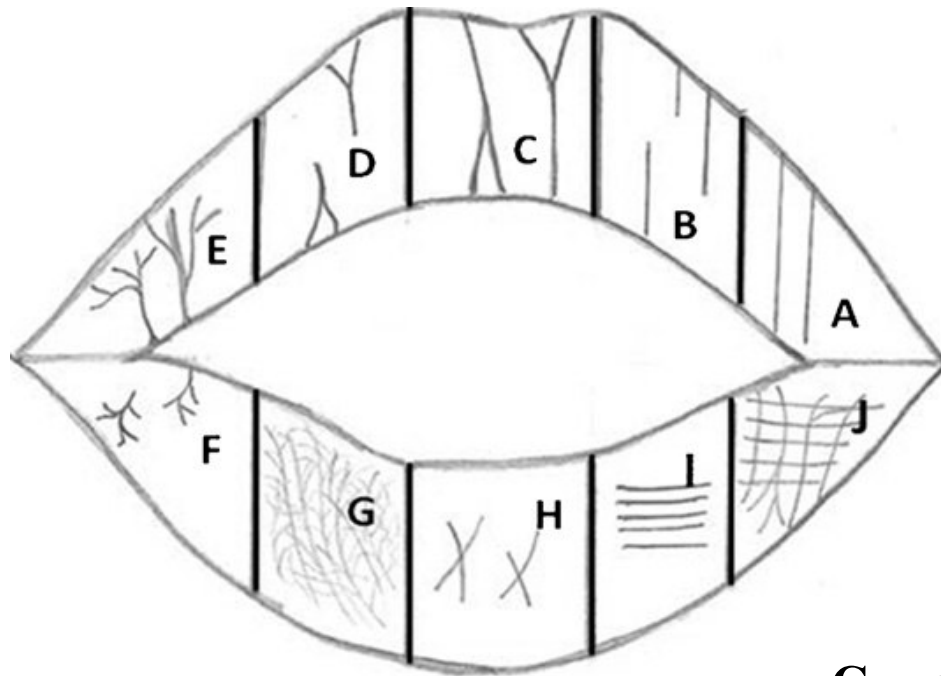
# **Methods for taking the impression**

- (a) Direct light pressure was applied by the lips on a folded paper**
- (b) Rolling the paper onto the lips with applying slight pressure onto the lip**
- (c) Applying direct light pressure of slightly separated lips on a paper put on a hard surface.**

# Examination of the prints



# Lip-groove types



**A = complete vertical**

**B = incomplete vertical**

**C = complete bifurcated**

**D = incomplete bifurcated**

**E = complete branched**

**F = incomplete branched**

**G = reticular pattern**

**H = X or comma form**

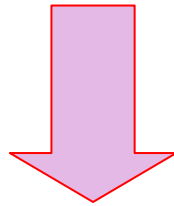
**I = horizontal**

**J = horizontal with others forms (vertical, bifurcate or branching)**

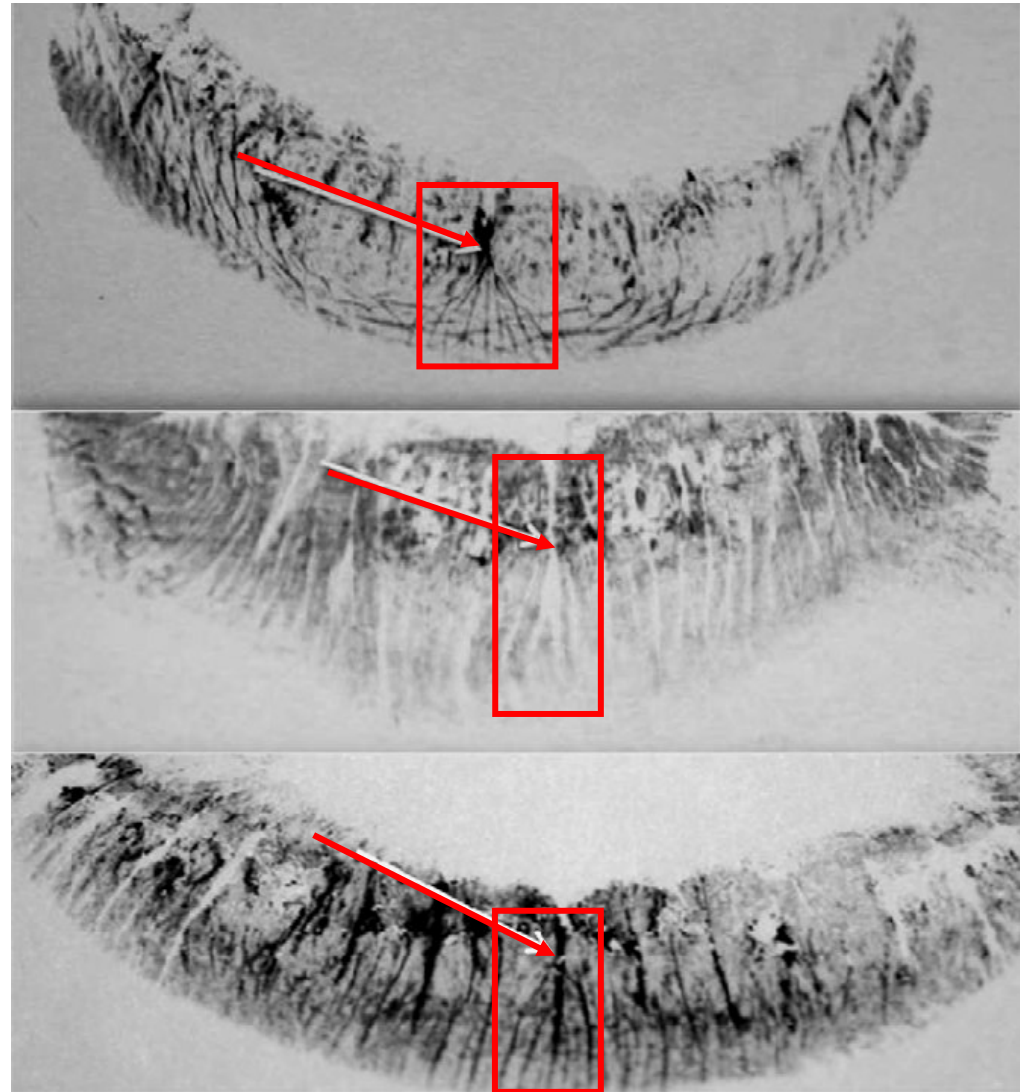
# Results and Discussion

# Photographs of lower lip prints of three Saudi individuals

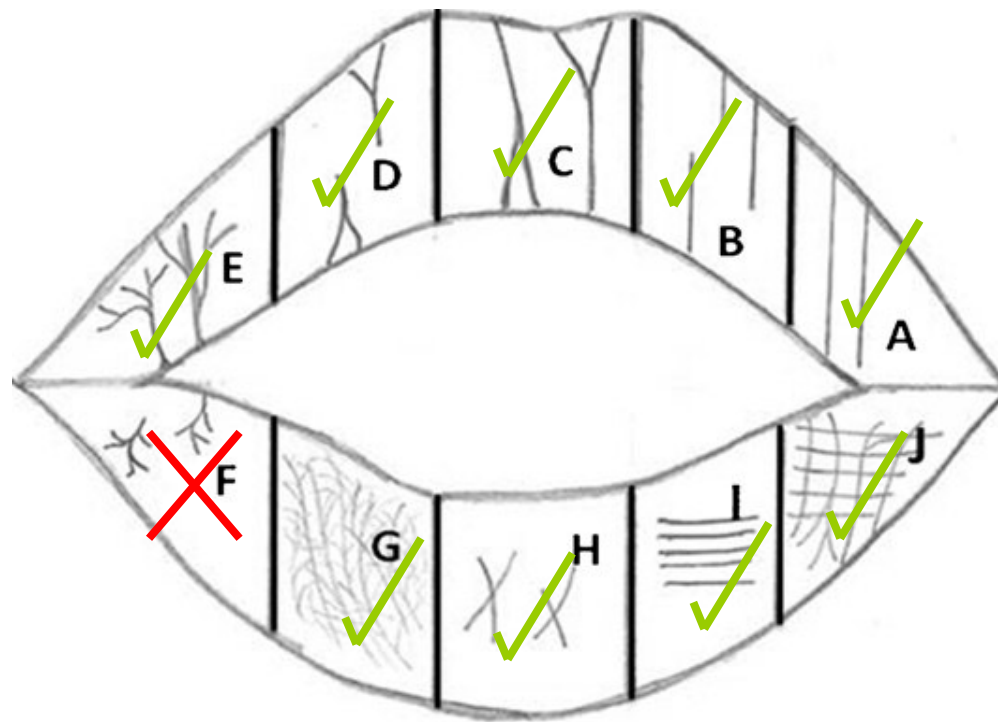
the same groove types in  
the same areas of the lip



specificity of groove pattern  
was evidently present

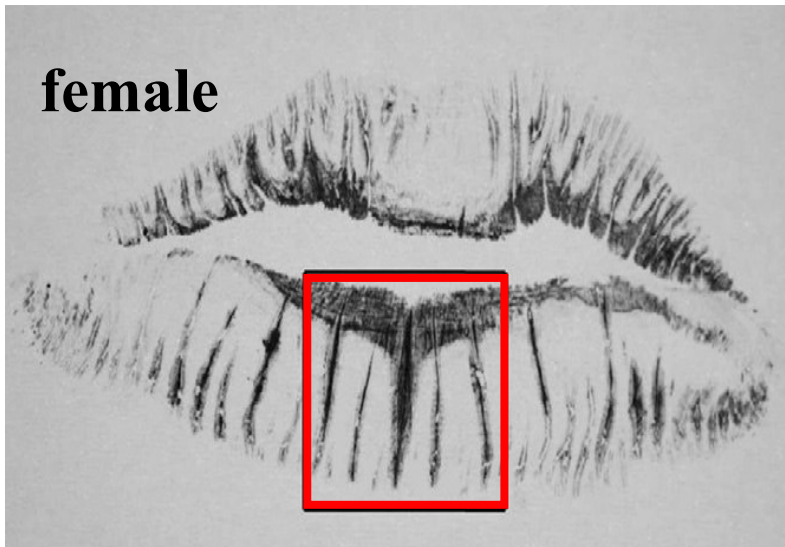
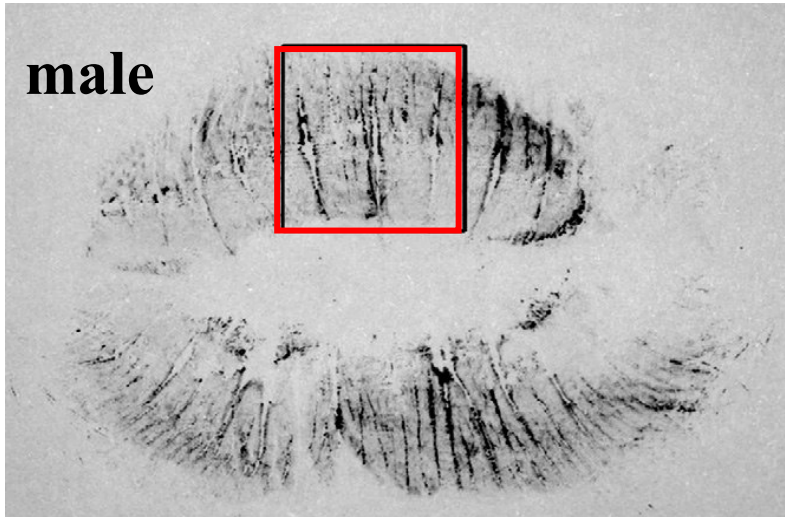


**The lips of the studied persons at Almadinah  
Almonawarah area showed nine types of grooves**

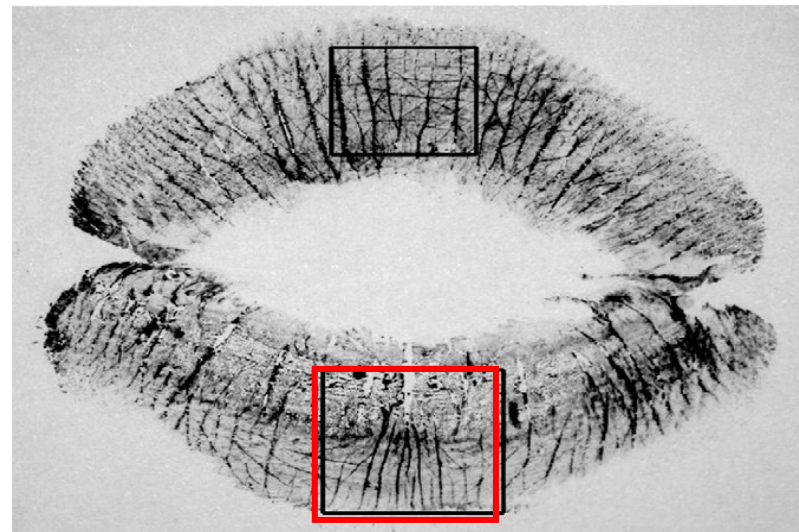
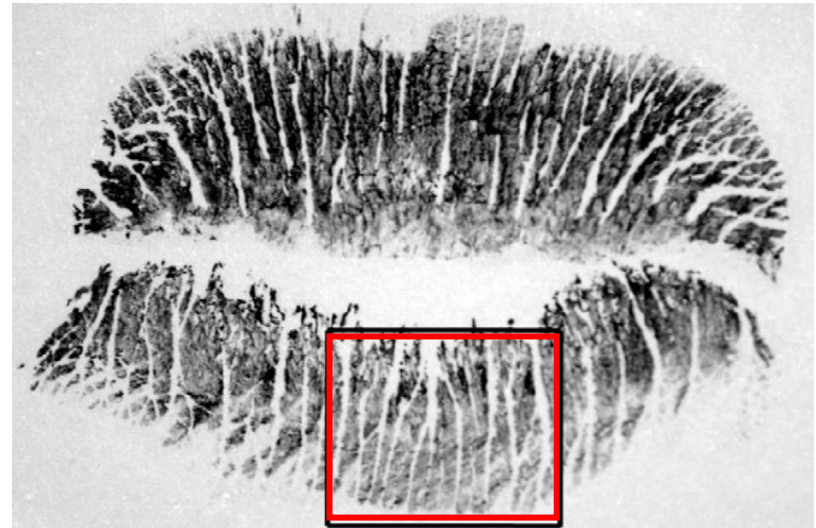




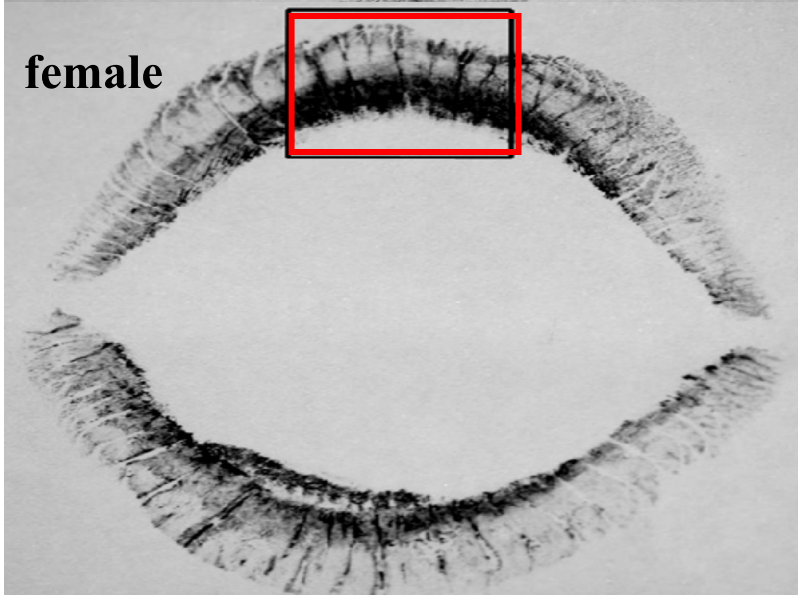
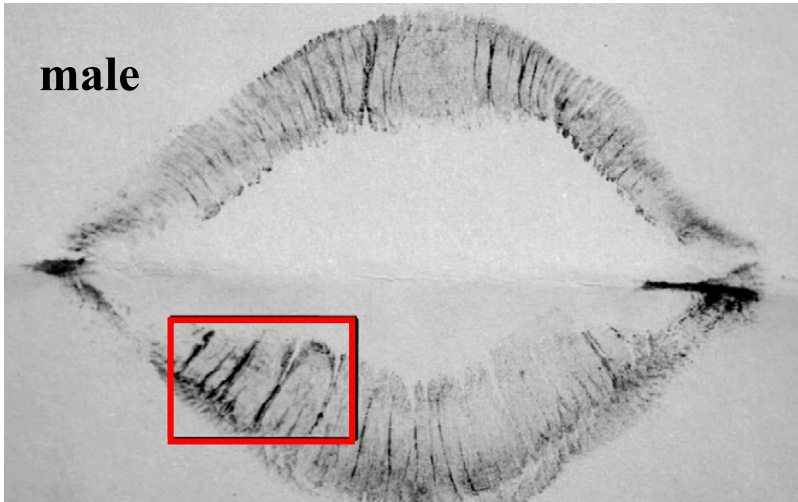
**Groove type A**  
**(complete vertical)**



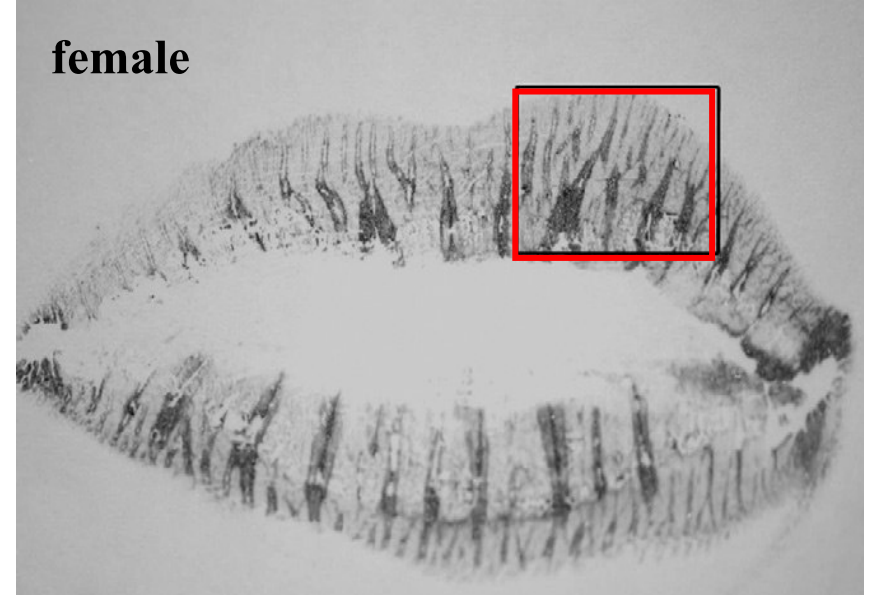
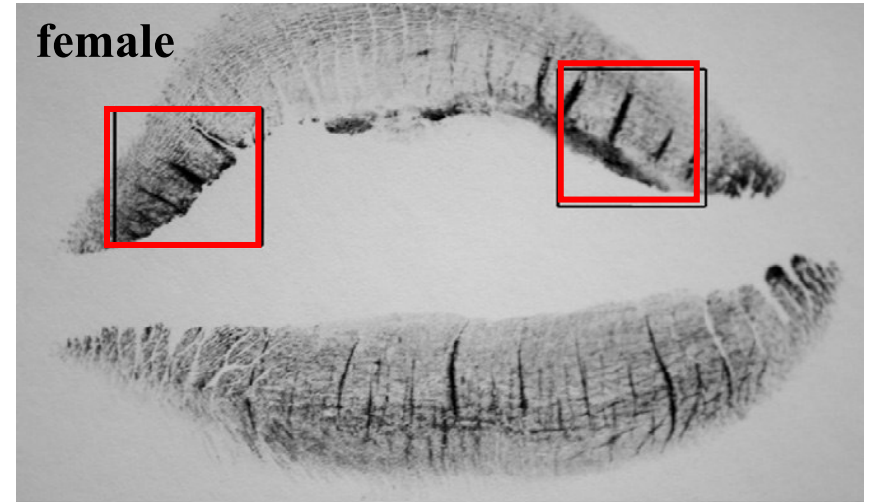
**Groove type E**  
**(complete branched)**



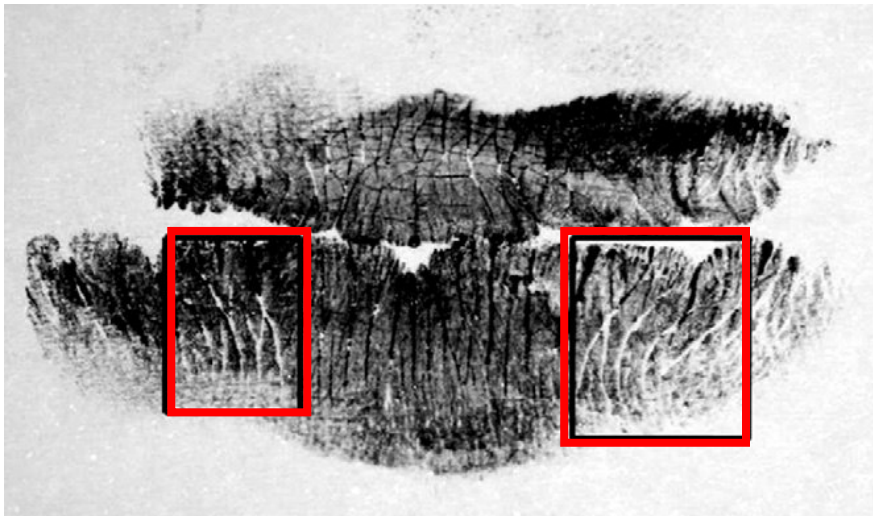
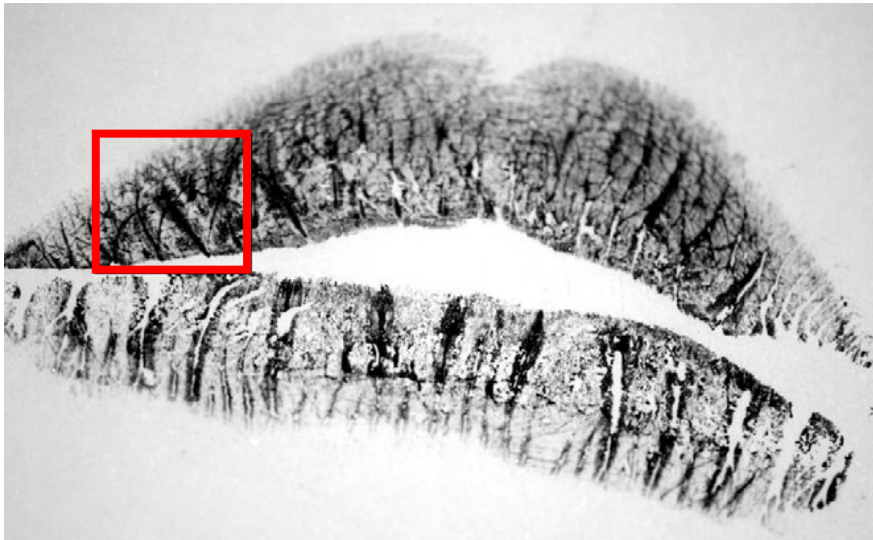
**Groove type C**  
**(complete bifurcate)**



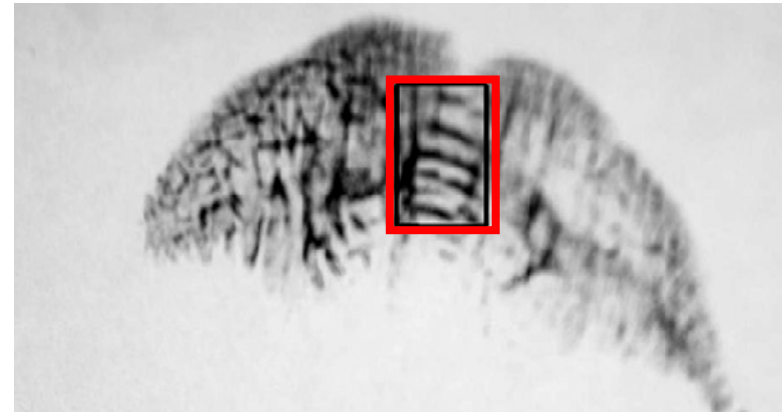
**Groove type D**  
**(incomplete bifurcate)**



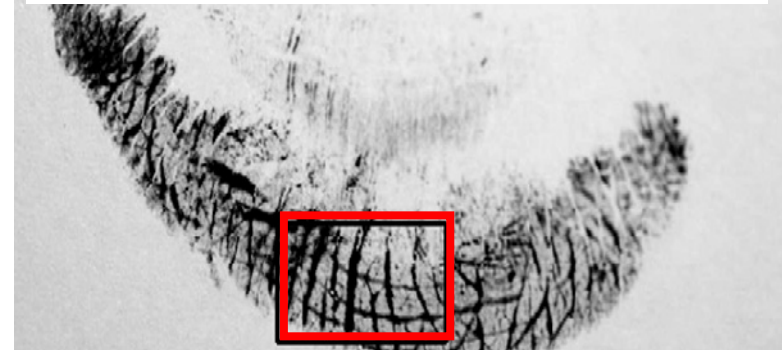
**Groove type H  
(X form)**



**Groove type I  
(horizontal)**

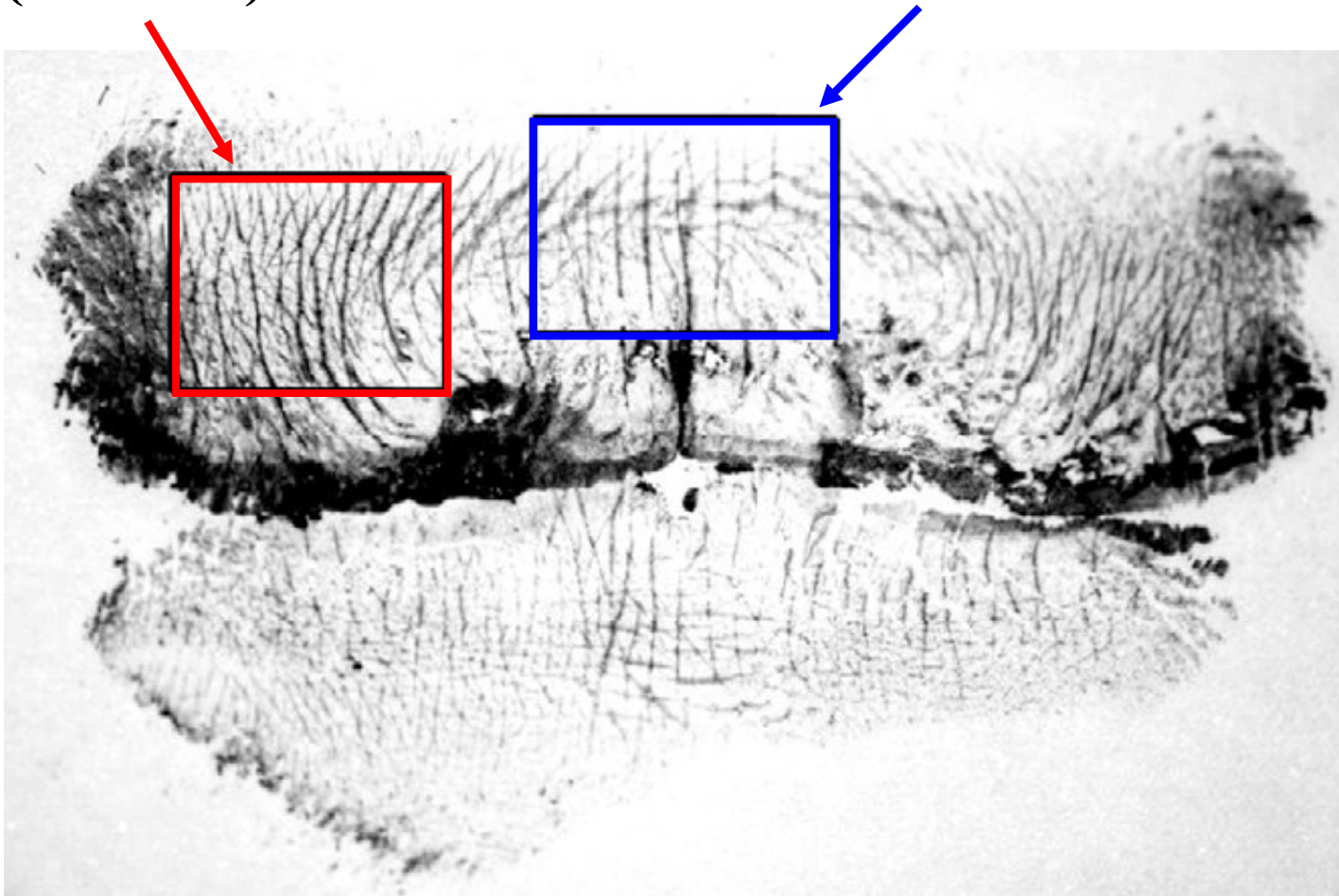


**Groove type J  
(horizontal with other forms)**



**Groove type G**  
**(reticular)**

**Groove type J**  
**(horizontal with other forms)**



# Frequency of pattern types

| Areas        | Sex | Frequency of pattern type % |     |      |     |      |   |      |     |     |      |
|--------------|-----|-----------------------------|-----|------|-----|------|---|------|-----|-----|------|
|              |     | A                           | B   | C    | D   | E    | F | G    | H   | I   | J    |
| Upper right  | M   | –                           | –   | 32.6 | 2.6 | 19.2 | – | 19.5 | 2.1 | –   | 23.9 |
|              | F   | 2.0                         | 0.2 | 24.1 | 0.9 | 14.3 | – | 17.4 | 1.1 | 0.2 | 39.8 |
| Upper middle | M   | 10.3                        | 1.6 | 30.3 | 4.5 | 6.1  | – | 3.1  | 1.4 | –   | 42.7 |
|              | F   | 7.4                         | 0.6 | 12.0 | 1.3 | 3.5  | – | 4.6  | 0.9 | 0.9 | 68.7 |
| Upper left   | M   | 4.0                         | 0.5 | 24.6 | 3.5 | 18.1 | – | 19.2 | 2.8 | –   | 27.2 |
|              | F   | 1.7                         | 0.4 | 23.0 | 1.1 | 13.0 | – | 15.9 | 1.5 | –   | 43.5 |
| Lower right  | M   | 3.3                         | –   | 35.9 | 4.5 | 28.9 | – | 18.8 | 1.6 | –   | 7    |
|              | F   | 1.1                         | 0.2 | 41.9 | 4.1 | 26.9 | – | 14.1 | 1.1 | –   | 10.7 |
| Lower middle | M   | 13.1                        | 1.9 | 29.8 | 7.0 | 24.9 | – | 4.0  | 1.6 | –   | 17.6 |
|              | F   | 11.1                        | 2.2 | 33.3 | 3.9 | 10.0 | – | 7.0  | 0.9 | –   | 31.5 |
| Lower left   | M   | 1.9                         | –   | 33.8 | 6.3 | 31.9 | – | 18.3 | 0.5 | –   | 7.3  |
|              | F   | 1.5                         | 0.7 | 40.6 | 4.3 | 25.0 | – | 15.5 | 1.7 | –   | 10.9 |

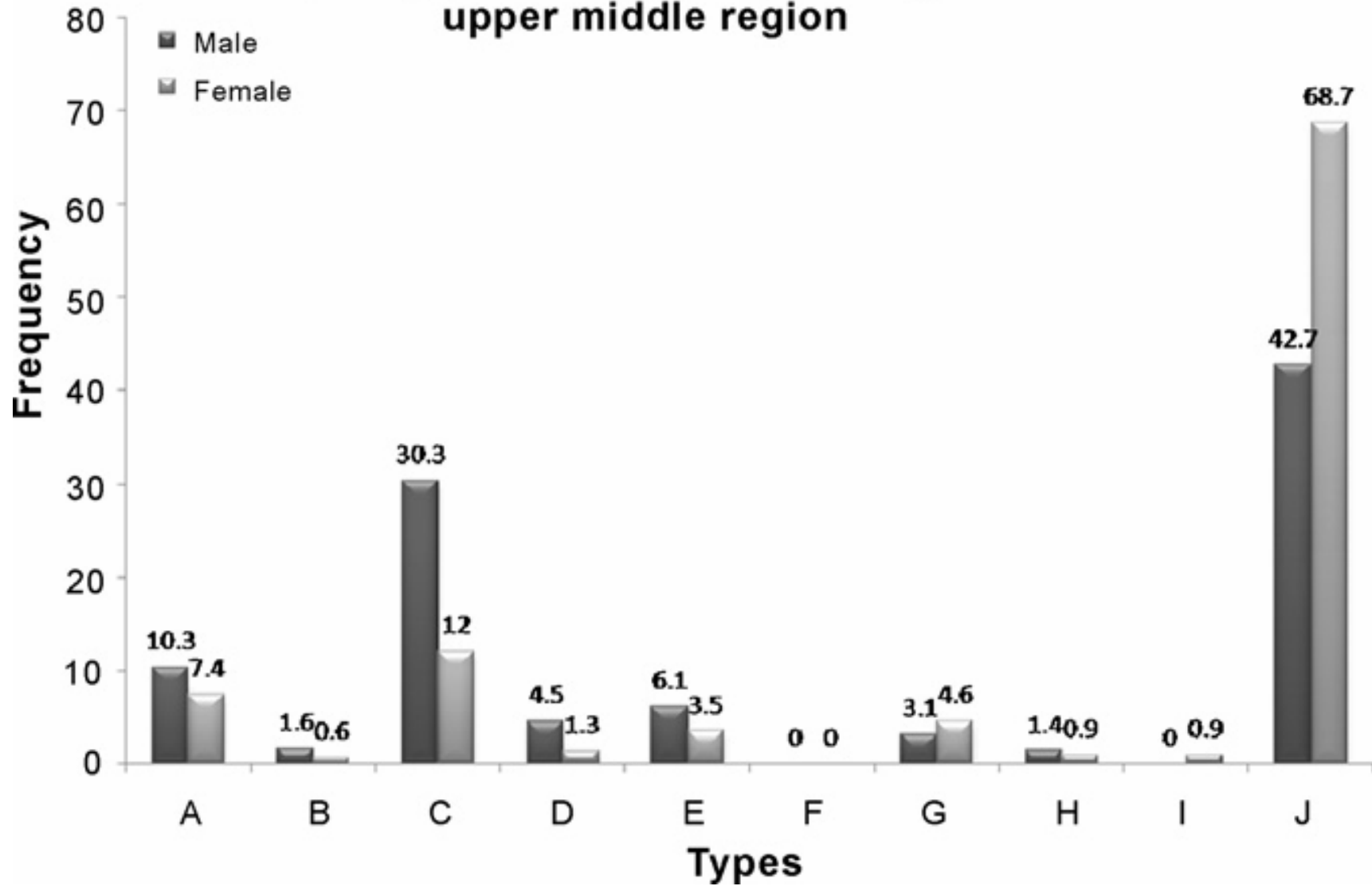
# Frequency of groove types

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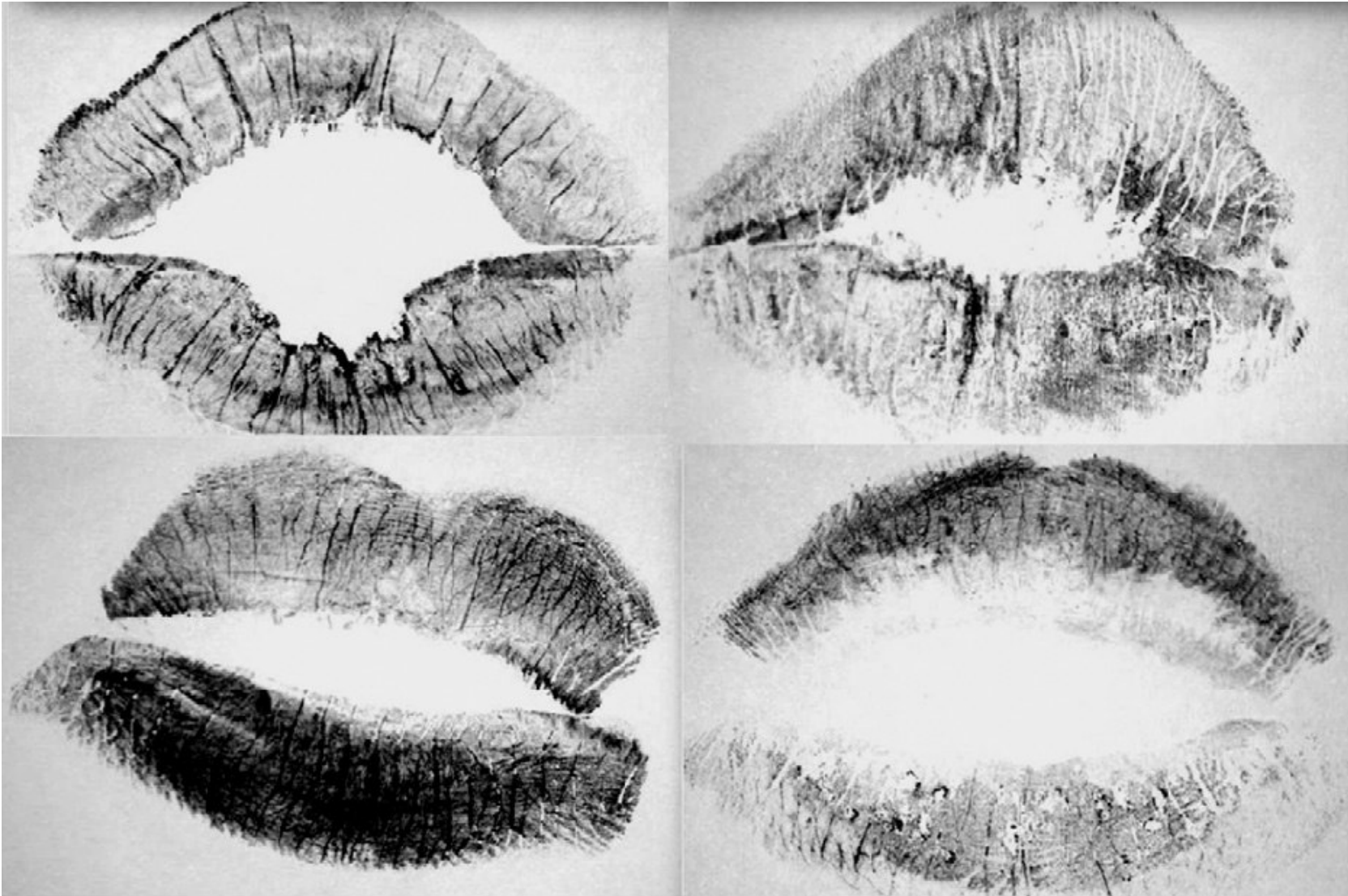
| Type | Male  | Area | Female | Area |
|------|-------|------|--------|------|
| J    | 42.7% | UM   | 68.7%  | UM   |
| C    | 35.9% | LR   | 41.9%  | LR   |
| E    | 31.9% | LL   | 26.9%  | LR   |
| G    | 19.5% | UR   | 17.4%  | UR   |
| A    | 13.1% | LM   | 11.1%  | LM   |
| D    | 7.0%  | LM   | 4.3%   | LL   |
| H    | 2.8%  | UL   | 1.7%   | LL   |
| B    | 1.9%  | LM   | 2.2%   | LM   |
| I    | –     | –    | 0.9%   | UM   |
| F    | –     | –    | –      | –22  |

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**Frequency percent of the groove types in the upper middle region**

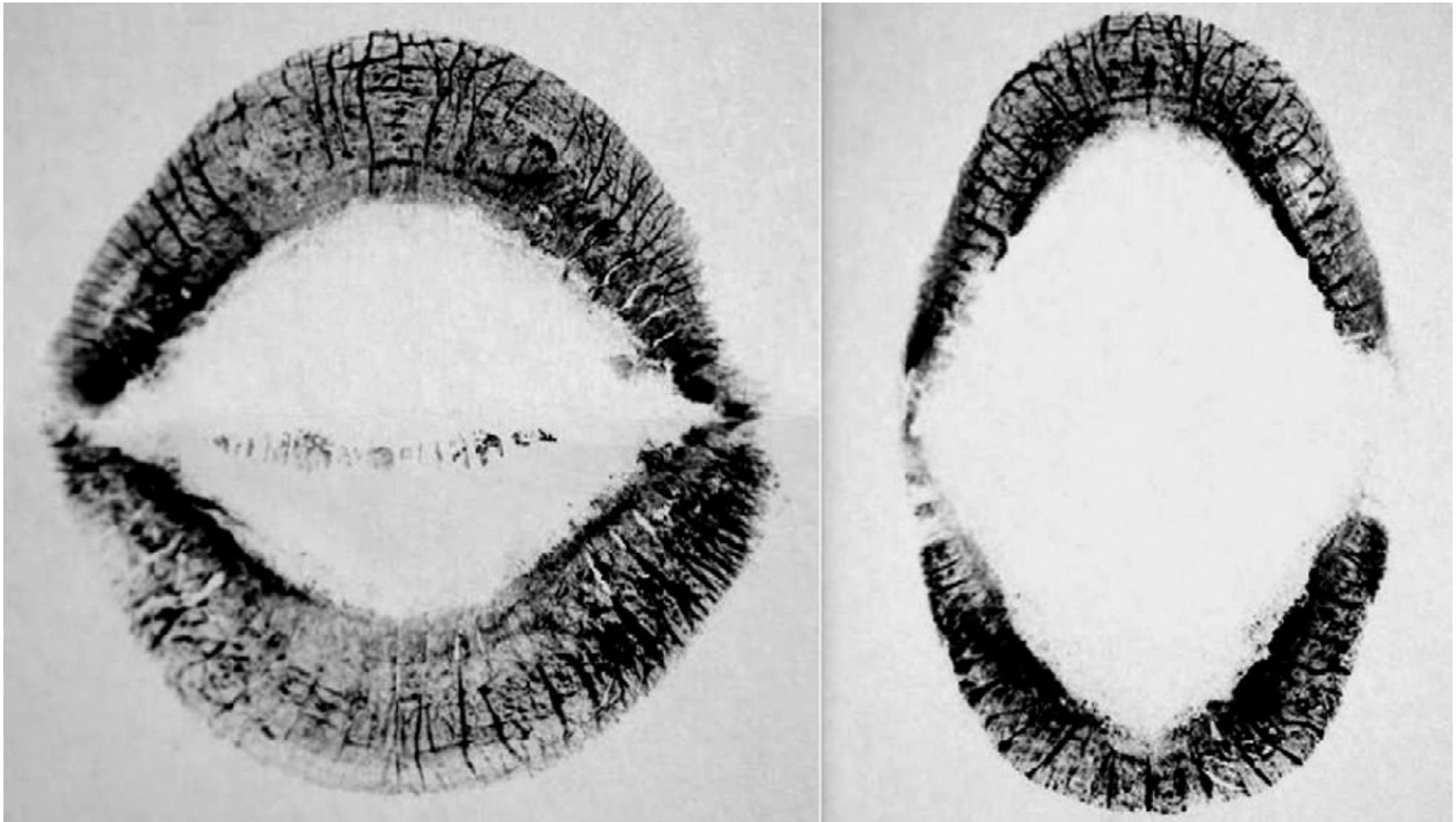


# Lip prints of one Saudi family

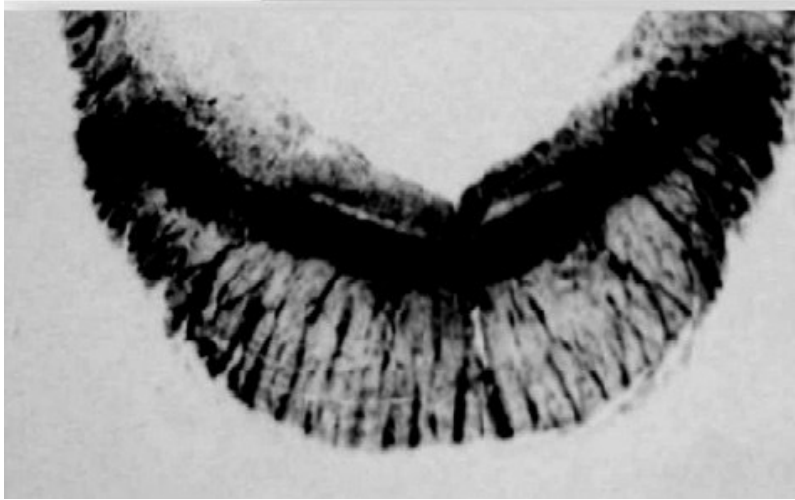
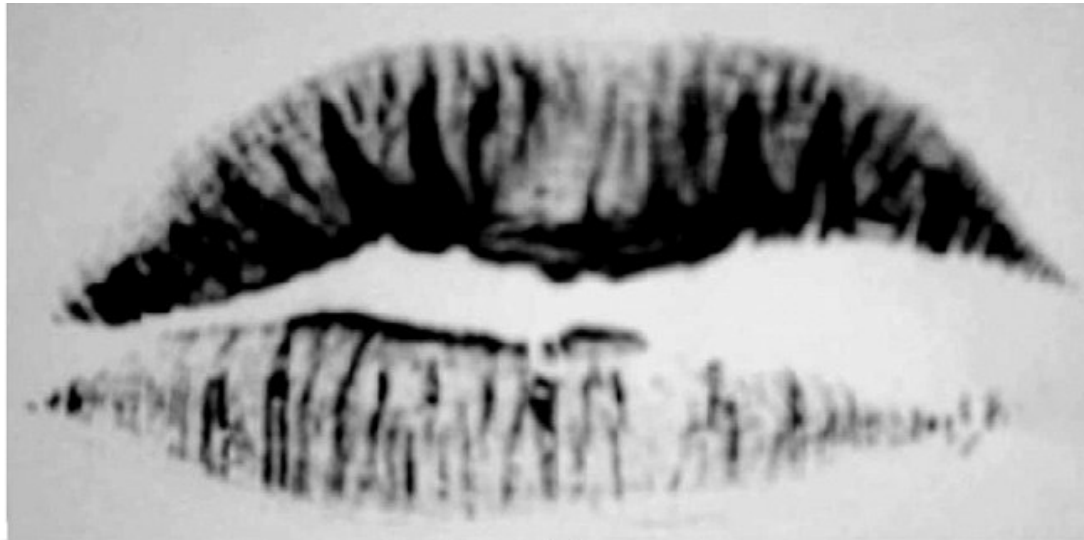




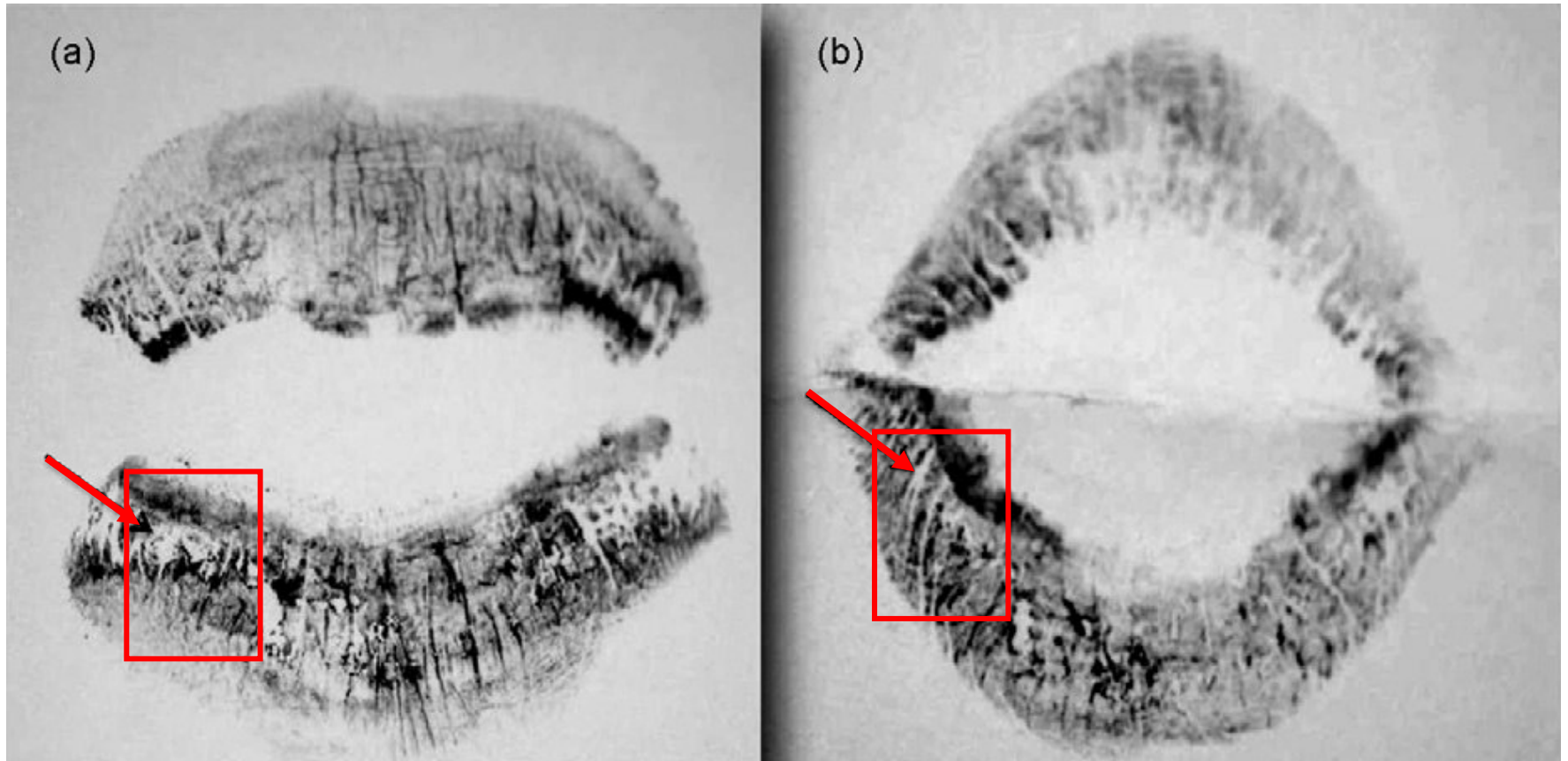
# Lip prints of identical twins



# Effect of different pressure



# Effect of dry weather



**(a) The first taken lip print  
from the subject**

**(b) The fifth taken lip print  
from the same subject**

# **Conclusion**

- **This study proved the individuality of Saudi lip prints as no identically similar lip-print patterns appeared in two subjects**
- **Dissimilar lip-print patterns were detected among different individuals of families**
- **Non-identical lip-print patterns were recorded in identical twins**