

Salmo trutta fario

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Salmo trutta fario,

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(PCA)

(DFA)

(P<0.001)

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UPGMA

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Salmo trutta L.

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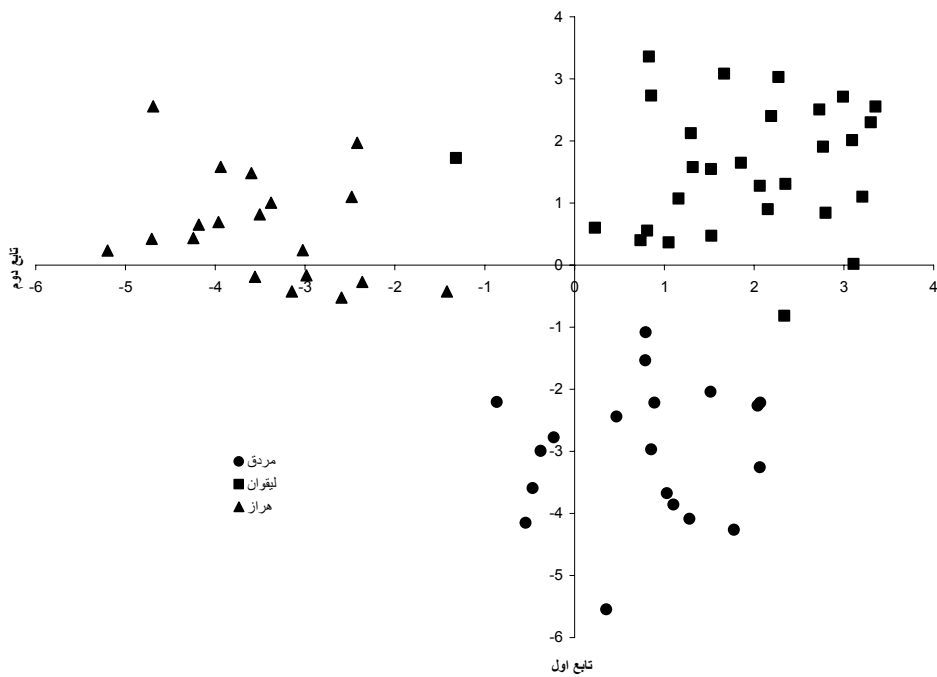
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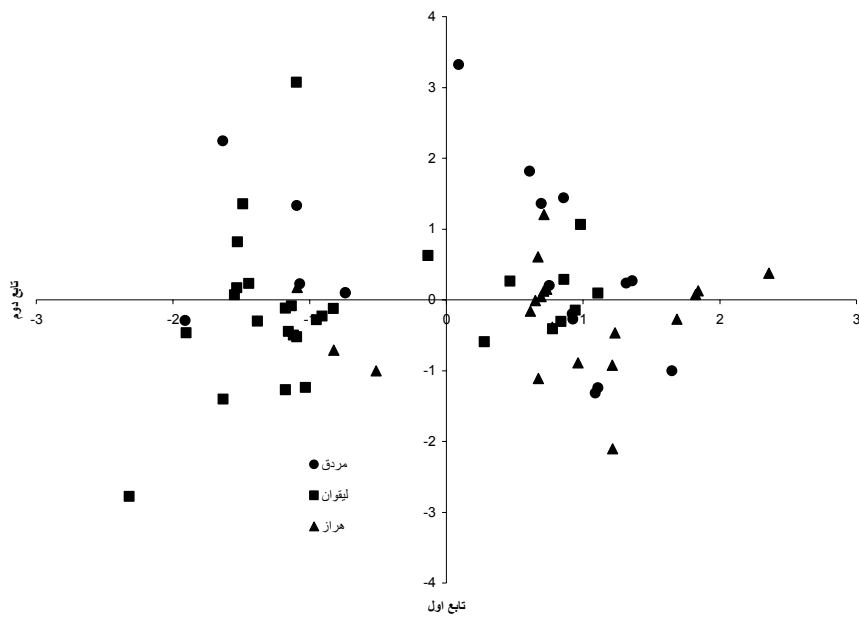
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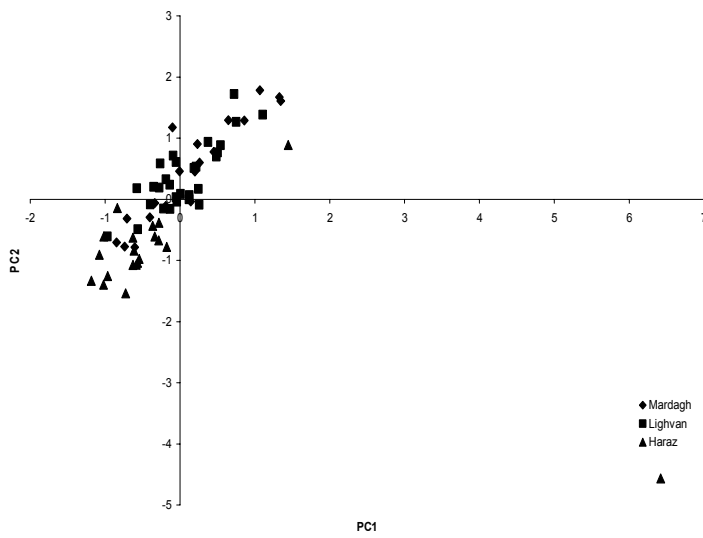
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(DFA¹)



(DFA¹)



(PC)

Discriminate Function Analysis
Principle Components

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	(PC2)	(PC1)
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(P≤0.001)

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(ANOVA) (±)

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$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
$P \geq /$	/ ± / b	/ ± / b	/ ± / a	
$P \leq /$	/ ± / ab	/ ± / b	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
$P \leq /$	/ ± / a	/ ± / b	/ ± / ab	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \leq /$	/ ± / b	/ ± / ab	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \geq /$	/ ± / ab	/ ± / b	/ ± / a	
$P \leq /$	/ ± / b	/ ± / a	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \leq /$	/ ± / a	/ ± / a	/ ± / b	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \leq /$	/ ± / a	/ ± / a	/ ± / b	
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$P \geq /$	/ ± / a	/ ± / ab	/ ± / b	
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$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
$P \geq /$	/ ± / ab	/ ± / b	/ ± / a	
$P \geq /$	/ ± / a	/ ± / a	/ ± / a	
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$P \leq /$	/ ± / b	/ ± / b	/ ± / a	-
$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
$P \leq /$	/ ± / b	/ ± / b	/ ± / a	
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$P \geq /$	/ ± / a	/ ± / a	/ ± / a	

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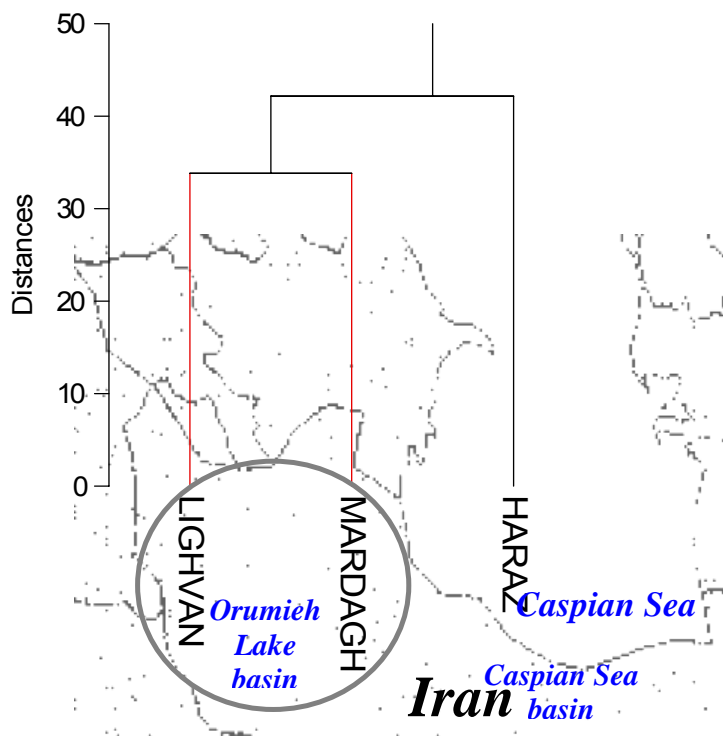
(ANOVA) (±)

$P \geq /$	±	±	±	
$P \geq /$	± / ^a	± ^a	± ^a	
$P \geq /$	±	±	±	
$P \geq /$	/ ± / ^a	/ ± / ^a	/ ± / ^a	
$P \leq /$	/ ± / ^a	/ ± / ^a	/ ± / ^b	
$P \leq /$	/ ± / ^b	/ ± / ^a	/ ± / ^b	

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UPGMA



UPGMA

Mahalanobis

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(P<0.001)

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Morphological comparison of brown trout, *Salmo trutta fario*, populations of Haraz, Lighvan and Mardagh Rivers

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Abstract

This study was undertaken with the aim of morphological comparison among brown trout, *Salmo trutta fario*, populations in Haraz (Caspian basin), Lighvan and Mardagh (Orumieh Lake basin) Rivers on 70 fish captured during September 2007. The results of analysis of morphologic and meristic features using Discriminant Function Analysis (DFA), Principle Component Analysis (PCA) and Cluster Analysis showed that these populations are morphologically different ($P < 0.001$). In this regard morphologic characters were more differentiated among populations than the meristics. DFA method discriminated populations better than PCA and in Jackknifed classification on average 74% of the individuals were aligned to their original populations. Among meristic characters the number of right branchiostegal rays were more effective in separating populations and among metric characters preanal body height, precaudal body height, body length, caudal fin height, preorbital body width, the distance from Snout to origin of anal fin, caudal fin length, dorsal fin length, distance from dorsal fin termini to caudal fin base and Snout length were recognized as effective variables. It can be concluded that metric characters studied here were more efficient in discriminating the fish populations of Azerbaijan and Haraz, compared to meristic characters analyzed in this study. In cluster analysis based on average linkage method (UPGMA) using Mahalanobis distance, the fish populations of Lighvan and Mardagh Rivers were classified under the same cluster.

Key words: Morphologic, brown trout, Haraz, Lighvan, Mardagh, Discriminant function analysis, Principle component analysis, Cluster analysis

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