

## A hierarchical classification of dry/wet Mizaj (Temperament) using thermal imaging

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### Abstract:

**Background and Purpose:** Mizaj (Temperament) identification is an important stage of diagnosis in Persian Medicine (PM). This study aimed to evaluate thermal imaging as a reliable tool that can be used instead of subjective assessments.

**Materials and Methods:** This study was conducted in the winter of 2020 at the Behesht Traditional Medicine Health Clinic (Tehran, Iran). The Mizaj (Temperament) of 34 participants was assessed by a PM specialist using Mojahedi Mizaj standardized Questionnaire (MMQ). Also thermal images of the wrist at the radial pulse location, the back of the hand, and their whole face were recorded by a thermography camera model T2 (ULIRVISION Co.) and the temperatures of regions of interest were measured.

**Results:** Twelve thermal features were extracted and a classifying algorithm was designed based on a genetic algorithm and an Adaboost classifier. By selecting 7 of the 12 features that had the most impact on the classification, the mean accuracy of 85.6%, sensitivity of 66.7%, and specificity of 91.7% were obtained.

**Conclusions:** The thermal imaging was significantly consistent with MMQ and can be used as a reliable tool for evaluating dry/wet Mizaj (Temperament).

**Keywords:** Persian Medicine, Mizaj, Temperament, Thermography

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