

عنوان مقاله:

Molecular and biochemical evaluation related to fragrance in some Iranian rice varieties

محل انتشار:

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خلاصه مقاله:

Rice fragrance is one of the most important and determining factors in rice quality. Aromatic rice is a special group considered to be of the best quality. It is important to know the physiological behavior and genetic source of aromatic rice in order to improve breeding programs. In this research, thirteen rice cultivars were used for molecular and biochemical evaluations. The research population included three aromatic cultivars and ten cultivars from Khuzestan province in Iran. Thirteen SSR and four MAS markers related to grain aroma were used for genotyping the rice cultivars. The highest PIC for SSR markers was 0.75. Cluster analysis using the UPGMA method classified all cultivars into three groups. The results of MAS for EAP and INSP primers showed a molecular band of 355 bp in the non-aromatic rice cultivars. In this study, four non-aromatic cultivars (Hamar (Sorkheh), Danial, Garde Ramhormoz, and Hoveizeh) were detected. The results of IFAP and ESP primers further revealed a band of 257 bp, identified in Taron, Domsiah, Basmati, Anbarbo Najafi, Anbarbo Red, Anbarbo Yellow, Kadoos, Champa, and Shafagh, all aromatic cultivars. Moreover, the volatile components of rice seed samples were extracted and identified using the sensitive and efficient solid phase extraction method, GC-MS. Eight compounds (aldehyde, pentane, hexanal, heptane, tetradecane, ketone, acetic acid, and 2-acetyl-1-pyrroline) were identified from the studied cultivars as the most important chemical compositions of aroma in rice. The 2-AP compound was recognized in Taron, Domsiah, and Anbarbo Najafi cultivars. Finally, four MAS primers identified all aromatic rice cultivars as well as thirteen SSR markers related to rice fragrance.

کلمات کلیدی:

GC-MS, MAS marker, Rice, SSR, 2-acetyl-1-pyrroline

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