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GENIC SSR DEVELOPMENT AND DIVERSITY ASSESSMENT OF PERSIAN HALOPHYTIC GRASS, *AELUROPUS LITTORALIS*

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Aeluropus littoralis is a valuable halophyte grass belonging to the same family of wheat and is used as forage. Although *A. littoralis* has the potential to become an important genetic resource for improving salt and drought tolerance in economically important crops, no SSR markers have been developed for it. The main goal was to rapidly develop a set of genic SSR markers for *A. littoralis*. Repeat analysis of non-redundant EST sequences of *Aeluropus* and transferability assessment of 110 SSR-rich loci from rice and wheat were used to identify EST-SSRs. Then selected EST-SSR loci and some physiological traits including Na, K and Ash content were utilized for marker characterization and assessment of genetic diversity among *A. littoralis* accessions collected from all around the country. The results showed that 6.7 % of EST records of *A. littoralis* comprising SSR motifs which was used for designing 18 primer pairs (ALES). In addition 48 SSR loci (GDES) from 110 of the gramineae were shown to be transferable to *A. littoralis* based on the PCR profiles. Finally, genotypic clustering based on EST-SSR markers divided the accessions into seven groups. The accessions were also categorized into six groups according

to the physiological traits. Our finding indicated that there are remarkable variations about 33 % in coding regions of Iranian *Aeluropus* accessions. The results of both genotypic and physiologic clustering were partially consistent and most groups corresponded to geographic regions.

Key words: EST-SSRs, EST Repeat analysis, Genetic variation, Transferability.

РОЗРОБКА ГЕННИХ SSR-МАРКЕРІВ ТА ОЦІНКА РІЗНОМАНІТТЯ ГАЛОФІТОВОЇ ПЕРСЬКОЇ ТРАВИ, *AELUROPUS LITTORALIS*

Aeluropus littoralis – це цінна галофітова трава, яка належить до одного з пшеницею сімейства і використовується як корм для тварин. Хоча в *A. littoralis* є потенціал можливого генетичного ресурсу для покращення стійкості економічно важливих сільськогосподарських рослин до солей та посухи, для цієї рослини не було розроблено жодних SSR-маркерів. Головна мета полягала в швидкій розробці набору генних SSR-маркерів для *A. littoralis*. Для ідентифікації EST-SSR проводили повторний аналіз ненадлишкових послідовностей EST *Aeluropus* і оцінку переносимості 110 локусів рису та пшениці з багатьма SSR. Потім вибрані локуси EST-SSR та деякі фізіологічні ознаки, зокрема вміст Na⁺, K⁺ та попелу, використали для характеризування маркерів та оцінки генетичного різноманіття в ізолятах *A. littoralis*, зібраних по всій країні. Результати продемонстрували, що 6.7 % записів EST щодо *A. littoralis* містили мотиви SSR, які було використано для розробки 18 пар праймерів (ALES). Крім того, було показано можливість переносу 48 локусів SSR (GDES) із 110 від Gramineae до *A. littoralis* на основі профілів ПЛР. Зрештою генотипне кластерування на основі маркерів EST-SSR дозволило поділити ізоляти на сім груп. Також ізоляти було категоризовано в шість груп за фізіологічними ознаками. Наші результати продемонстрували значне різноманіття (близько 33 %) кодуєних участків ізолятів іранських рослин *Aeluropus*. Результати генотипного та фізіологічного кластерування частково узгоджувалися між собою і більшість груп відповідала географічним регіонам.

Ключові слова: EST-SSR, повторний аналіз EST, генетична варіація, переносимість.

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