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DEVELOPMENT AND APPLICATION OF IDENTIFICATION OF SOYBEAN VARIETIES – SSR MARKER METHOD

Document prepared by experts from China

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The annex to this document contains a copy of a presentation on “Development and application of identification of soybean varieties – SSR marker method”, to be made at the eighteenth session of the BMT.

[Annex follows]



Development and application of 《Identification of soybean varieties –SSR marker method》

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Introduction

- Soybean is one of the five main crops in China.
- Nowadays, soybean production is far away from the need of consumption domestically. 90% of soybean depends on import from other countries.
- Heilongjiang province is one of the main soybean grower in China. Annual sowing area is around 2 million ha. and it has been increasing in the background of trade gap between China and USA.
- In China, more and more soybean varieties need to do DUS test since 2016 . Less differentiable traits in soybean varieties make distinctness test and searching most similar varieties difficult, so application of molecular techniques in DUS test will be a helpful means.





Development course 《Identification of soybean varieties –SSR marker method》

- 1、 SSR primers selected based on rules of high polymorphism, uniform distribution on genome, clear and stable amplification.
- 2、 More than 100 varieties with different types were used for PCR amplification and example varieties were selected based on minimum variety number from them.
- 3、 36 primers distributed in 20 linkage groups were selected for **《Identification of soybean varieties – SSR marker method》**



Materials and Method

- 1) 545 soybean varieties, from 22 provinces / autonomous regions in China, were used for PCR amplification and 44(39 pairs) of 545 varieties were planted in Harbin for agronomic traits assessment.
- 2) SSR markers used: based on 《Identification of soybean varieties –SSR marker method》
- 3) Agronomic traits assessment: based on national guidelines of soybean 《Guidelines for the conduct of tests for distinctness, uniformity and stability—Soybean (*Glycine max* (L.)Merrill)》

545 varieties population structure analysis

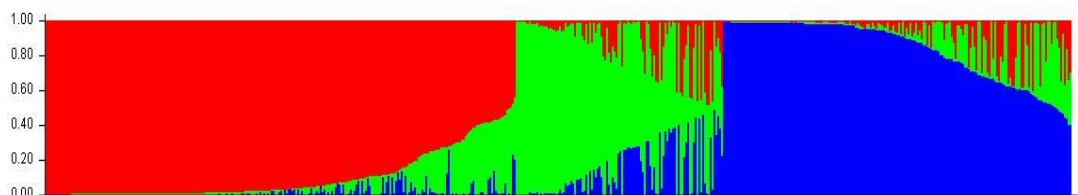


Fig.1 3 groups diagram of 545 varieties

According to the data, 545 soybean varieties were divided into three groups, indicating the fact of narrow genetic basis of cultivated soybean and its less differentiable in China.



Association Analysis of SSR Markers and Agronomic Traits

Tab.4 Association analysis result

Trait	Locus	F_Marker	
Hypocotyl anthocyanin coloration	Satt197	2.4816	
Hypocotyl anthocyanin coloration	Satt005	0.3849	
Hypocotyl anthocyanin coloration	Satt100	2.6921	
Hypocotyl anthocyanin coloration	Satt288	0.7482	
Hypocotyl anthocyanin coloration	Satt453	2.7959	
Hypocotyl anthocyanin coloration	Satt218	4.1452	





THANKS for attention!



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