IDENTITY/ALLELISM TESTS FOR DIFFERENT SOURCES OF GENE af

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Kujala (1953) and Goldenberg (1965) are the officially accepted authors for the gene afila and the symbol af, respectively (1). At present, lines with the same phenotype and presumably the same genotype are located in different laboratories throughout the world. Much of this distribution is owing to the fact that the original line of Goldenberg has been distributed the world over; for example, all lines in the USA came from Goldenberg via Marx or directly from Goldenberg. Thanks to cooperative exchanges among pea researchers, the afila mutant is now utilized in many breeding and experiment stations and some cultivars have been bred (England, Poland, USA, USSR). Because of this widespread exchange, it is difficult in some cases to establish the original source of the mutant lines.

Yet mutants with a phenotype seemingly identical with have been reported. Since it is possible that new mutations may occur at the af 11a locus or, alternatively, that new mutations with the same phenotype may occur at different loci (as was suggested for example by Jaranowski, Gen. Pol. 1977), I decided to make identity test-crosses of afila-lines collected from different sources.

Six lines of the mutant afila were selected for this test (Table 1). The Goldenberg mutant has already been test-crossed to the Kujala mutant (Finland) and found identical (Blixt, personal communication) but the Kujala mutant was subsequently lost and therefore no longer available. Other lines existing in different laboratories can be traced back with great probability to the six sources listed in Table 1, plus the Kujala line.

Homozygous, recessive lines of afila-type mutants were crossed in a full diallel analysis. All resulting F1 plants were of the afila type. It can therefore be stated that all afila mutations known at present are determined by the gene af in chromosome 1.

1. Blixt, S. 1979. PNL 9, Supplement.

Table 1. Different sources of gene af used in a full diallel analysis of identify/allelism.

Source of gene			
Name of author/ possessor	Country	Name of mutant/ variety	Catalogue number of line at Wiatrowo
Jaranowski	Poland	Sum	10 256
Goldenberg	Argentina	Mutant of Cuarentona	11 692
Marx	U.S.A.		10 206
Michalski, Swickicki	Poland	Wasacz Wiatrowo	10 207
	"	" "	"
Snoad	U.K.	Filby	10 259
Solovieva	U.S.S.R.	Usatyj - 4	10 205