

GENETIC DIVERSITY IN ION ACQUISITION OF WILD FORMS AND INBRED
LINES OF SUNFLOWER

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Taking into consideration the fact that the genetic diversity
of concentration of individual elements of mineral nutrition is
important problem both theoretically and practically, we under-
took the investigation with sunflower plants.

Sunflower specificity in N, P, and K concentrations was exami-
ned with 12 wild forms and 20 inbred lines. Collections of both
wild forms and inbreds belong to the Institute of Field and
Vegetable Crops, Faculty of Agriculture, Novi Sad. Leaves of
wild forms were removed and collected from plants grown under
natural conditions while inbreds were grown in nutrient solu-
tion (Reid-York, 1958), by the method of water cultures, in
greenhouse for 25 days.

A remarkable specificity in concentration of individual ions,
in both wild forms and inbreds was found. A specific concen-
tration, i.e. percentage of N, P, and K was recorded in diffe-
rent genotypes investigated. In wild forms, the highest concen-
trations of elements (N+P+K) was obtained with H. debilis ssp.
(5,678 mg%), whereas the lowest with H. rigidis (3,281 mg%).
Difference calculated was 38%. However, when inbreds were
compared, variation range between the highest (OCMS-4) and the
lowest N+P+K concentrations (OCMS-26) was only 15%. When the
ratios of elements were compared, it was evident that a consi-
derably greater variation of percentage was obtained with wild
forms than with selected plants. N percentage ranged from 57
(H. debilis ssp. debilis) to 79 (H. mollis) in wild forms,
whereas from 48 (OCMS-4) to 60 (OCMS-36) in inbred lines. In
wild forms, K percentage also varied ranging from 17 (H. mollis)
to 39 (H. debilis ssp. debilis) and P from 4 to 6. In inbreds,
K concentration ranged from 33 (OCMS-36) to 46 (OCMS-4) and P
from 5 (OCMS-2) to 11% (OCMS-10).

The results of this investigation suggest the presence of a re-
markable specificity in concentration and ratio of elements in-
vestigated, both in wild forms and inbred lines. Also, smaller va-
riation ranges of N and K were obtained with inbred lines than
with wild forms.