**Varietal Differences in Meiotic Chromosome Behavior of Brazilian WHEATS**

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It has long been recognized by the plant breeder that varieties of Triticum vulgare Vill. differ from one another in genic content. It has also been generally acknowledged that these varietes differ in their chromosomal constitutions. But, except for a rather limited group of cytologists, it has not been so generally admitted that, as a result of such chromosomal differences, there are varying degrees of meiotic irregularity encountered in intraspecific hybrids and derivatives of such hybrids. These cytological and genetic abnormalities may lead to difficulty in synthesizing new, stable varietes of the desired genotype.

Striking confirmation of this situation was obtained by the writer and his associates in a study of Brazilian wheats. It is the purpose of this paper to report on the results of the cytological studies, and to point out the value of such investigations to plant breeders in general.

**Materials and Methods**

From 4 to 30 plants of each of 19 varietes and intervarietal hybrid derivatives of Triticum vulgare Vill. were examined cytologically. They are listed in Table 1. The few data on Centenario are presented in the pedigree chart, text Fig. 1.

Material was collected from the wheat plots at the Escola de Agronomia, Porto Alegre, and the State Experiment Stations at Bagé and Julio de Castilhos.

Whole spikes were fixed in a mixture of absolute glacial acetic acid, and chloroform (6:3:1) and stored in a refrigerator at 5°C.

Most of the determinations were based on micronuclei observed at the young pollen quartet stage. One hundred plants in each were examined in each plant. Meiosis was studied in the young plants in order to discover the reasons for some of the abnormalities found in the quartet studies.

The photomicrographs were taken by Sr. Rubens Kroeff through the courtesy of Dr. Ivo Wolf, Director, Instituto Tecnologico de Rio Grande do Sul. All magnifications are X 1,100.

**Results**

Table 1 presents the data obtained from the meiotic examinations of the 19 varietes studied. The mean number of micronuclei per quartet was determined for each of the five varietes in which more than 10 plants were examined. Oitest is not included because individual lines were not included in this “variety.” Data for seven of the 19 Sinvalochos were obtained from the several lines of Oitest.

From the evidence of the quartet studies, it is apparent that there are varietal differences in meiotic chromosome behavior. In the Oitest line, only one plant examined had a low percentage of normal quartets. Sixteen of the 19 Sinvalochos, similarly low percentage of normal quartets. On the other hand, 12 of the 19 varietes (Patriarca to Amalana in Table 1) appeared to be fairly normal cytologically, although it is admitted that a few of additional plants might reveal some abnormalities.

By comparing the data in Tables 1 and 2, it is seen that the ranking of varietes based...