

STUDIES ON PERFORMANCE OF ASHWAGANDHA (*Withania somnifera* Daunal) ACCESSIONS IN MIDDLE GUJARAT CONDITIONS, INDIA

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ABSTRACT

Field experiments were conducted for three years at Anand to find out higher yielding accessions of Ashwagandha during rabi season in middle Gujarat conditions. The per cent increased dry root yield over the check were 25.49% of 4B accessions found to be stable accessions. The single and branch type plants of ashwagandha were identified from the population which has no significant difference in the yield and yield attributing characters.

Key words : Accessions, Ashwagandha, Bharuch, Branch, Carrot, Girth, Population, Root yield.

Ashwagandha (*Withania somnifera*) is an important medicinal plant cultivated in north western region of Madhya Pradesh on about 4000 ha (Nigam, 1984) Ashwagandha is growing in Gujarat and Rajasthan regions some extent. Roots are prescribed for female disorder, bronchitis, rheumatism and dropsy. Warm leaves are used for providing comfort during eye diseases. Pharmacological activity is due to the presence of several alkaloids in roots (Kattimani *et al.*, 1999). Variability in terms of yield and quality has been reported in ashwagandha by Sriram *et al.* (2002). In this experiment an attempt was made to evaluate the yield potential of identified higher yielder accessions under middle Gujarat agro-ecological conditions.

MATERIALS AND METHODS

Six accessions of ashwagandha of high yielding were evaluated with two released variety as a check at AINP centre for Medicinal and Aromatic Plants of Anand Agricultural University, Anand, Gujarat. The experiment was laid out in Randomized block design with four replications in the years 2002-03, 2004-05 and 2005-06. The 2003-04 years experiment was vitiated and not consider for the analysis. The plot size used was 4.0 x 2.4 m² with 30 x 30 cm² spacing. Seed treatment was given by Captan @ 3 gm/kg of seed before sowing with

6kg/ha seedrate and to protect against mortality of seedlings Carbendazim were given during the irrigation time. The 15 kg N and 15 kg P₂O₅/ha were given as a basal dose and no further manureing was done.

During the first year of experiment the single and branch type plants were identified from a plot it self and subsequent year both were grown in separate line in a same plot with equal lines. The yield and yield attributes were evaluated and statistically analyzed as described by Panse and Sukhatme (1985). Total dry root yield of single and branch type; individual yield of single and branch type as well as yield attributing characters like plant height, root length and root girth were taken.

RESULTS AND DISCUSSIONS

The dry root yield of eight accessions reported significant results in individual year for the dry root yield with low CV% value (9.16 to 15.5) but in pooled analysis the differences were non-significant. The results show that the CV% was 13.32 and the interaction was found to be significant in three years pooled analysis. The percent increased yield over the check were 32.73; 25.49, 25.31, 21.15 and 19.34%. These accessions are 13 Carrot 4B, 15 Bharuch, 1UB and 10WS20 respectively. The dry root yield was 734, 694, 693, 670 and 660 kg/ha recorded. Table 1.

When the plants were classified into single and branch type the results indicated that yield were variable and 13 carrot remain high yielding accessions in both type plants viz 3 years pooled analysis. In single type plants no