



# ISTA FLOWER SEED TESTING WORKSHOP

Tavazzano (LO), Italy, 5-8 June, 2007

By Rita Zecchinelli ENSE – Laboratorio Analisi Sementi, Tavazzano (LO), Italy



Participants of the ISTA Flower Seed Testing Workshop, Tavazzano, Italy 5-8 June 2007

The ISTA Flower Seed Testing Workshop was hosted by ENSE Laboratory, in Tavazzano, Italy, by the staff of ENSE Seed Testing Laboratory, Fabio Ferrari and Rita Zecchinelli, Head of the hosting laboratory and Flower Seed Testing Committee (FSC) Vice-Chair.

Zita Ripka, FSC Chair, Stefanie Kraemer, Tetrazolium Committee Chair, Maria Rosaria Mannino, Purity Committee Chair and Sylvie Ducournau Germination Committee Vice-Chair participated as lecturers, giving their important contribution to the success of the workshop.

The workshop was organised in the framework of the FSC activities with the aim of training participants in different kinds of tests relevant for flower species. The workshop was a mix of lectures and practical works, and consisted of purity, germination, tetrazolium test, and quality assurance sessions. Due to the presence of participants from non-ISTA laboratories, the activities of ISTA, and in particular the Flower Seed Committee, were also presented. 17 participants from France, Hungary, Italy, Japan, Norway, Serbia, Slovenia, Sudan and Turkey, coming from seed companies and public seed testing laboratories, attended the workshop.



A preliminary ring test between the participants, on a voluntary basis, had been organized prior to the workshop. Two *Callistephus chinensis* samples of about 5 grams had been distributed to 13 participants. Purity, other seed determination (OSD), and germination, were required tests. Results were presented by the test organiser. In general the results were very good. In the purity test, only two participants did not retrieve some added seeds belonging to the same species, while two other participants misidentified the seeds of *Chrysanthemum segetum*, as *Anthemis arvensis*. In the germination test, presentation of the results gave an opportunity to refresh the rounding procedure knowledge, as just in a single case it was not correctly applied. Germination results have been analysed by ISO 5725-2 software available on the ISTA web site. The analysis showed for two participants, a tendency to give over or under estimations ("h" values were greater than the critical values). None of the participating laboratories had shown "k" values (variability of the repeats) greater than the 1% and 5% "k" critical values.

After a presentation on the FSC activities by Zita Ripka, the first day was dedicated to purity testing. Maria Rosaria Mannino gave a lecture on pure seed definitions for *Viola*, *Dahlia* and *Centaurea*, species on which the practical exercises were organized. Participants were also asked to analyse two mixtures of flower species, one sample of large seeded species, and one sample of smaller seeds, with the aim to separate and identify the components.

The second and the third days' agenda included lectures and practical exercises on germination and tetrazolium testing. Stefanie Kraemer presented the theory and history of seed biochemical viability determination by the topographical tetrazolium test. Species considered during the tetrazolium session were *Callistephus chinensis*, *Dahlia pinnata* and *Helianthus debilis*. Samples were prepared one day and evaluated the day after.



Germination testing of *Helianthus debilis*

Species considered in the germination part were *Dahlia pinnata*, *Centaurea* spp., *Helianthus debilis* and *Campanula* spp. A presentation held by Sylvie Ducournau focused on the germination methods prescribed by the ISTA Rules. Photos of normal seedlings and different types of abnormality, illustrated the seedling evaluation.

During the practical sessions, magnification of seed and seedlings were displayed on screen to show practical examples of how to prepare the sample for tetrazolium test, how to evaluate a seedling etc., and to analyse comments of participants.



Tetrazolium Practical Works

During the last day, time was reserved for the quality assurance system to be applied in different steps of laboratory work; such as preparation of working samples (Zita Ripka), purity test (Maria Rosaria Mannino), germination (Sylvie Ducurnau), and reporting results on ISTA certificates (Rita Zecchinelli). Maria Rosaria Mannino also presented the ISTA Universal List of Species, whilst Rita Zecchinelli gave a presentation on ISTA and its activities.

The workshop dinner was organised in Lodi, a small town whose old central square is famous for the ancient buildings and the cathedral.

By Rita Zecchinelli ENSE – Laboratorio Analisi Sementi, Tavazzano (LO), Italy

---