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JY

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

JY/T 0191-2011

Replacing JY 191-1985

**Root longitudinal model
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work_Part 1. Structure and Preparation of Standards" this standard replaces JY 191-1985 "Technical Conditions for Root Profile Model". In addition to editorial changes, the main technical changes are as follows.

-Appearance size has increased allowable tolerances;

-Added the requirement that the main parts of the model should be affixed with name or

number tags;

-Specifies the materials that should and should not be used for the model;

-Specify the limit of heavy metal content in the paint of the model.

Please note that some elements of this standard may involve patents. The issuer of this standard is not responsible for identifying these patents.

This standard was proposed by the National Technical Committee for Standardization of Teaching Instruments (SAC/TC125).

This standard is under the jurisdiction of the National Technical Committee for Standardization of Teaching Instruments (SAC/TC125).

1 Scope

This standard specifies the nomenclature, requirements, test methods, inspection rules and signs, packaging, transportation, and storage of the root profile model.

This standard applies to the plant root longitudinal profile model for biology teaching.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 21746-2008 General requirements for safety requirements of teaching instruments and equipment
JY 0001-2003 General quality requirements for teaching instruments and equipment
products JY 0002 Inspection rules for teaching instruments and equipment
products JY 0026-1991 teaching instrument and teaching equipment product model naming
method JY 0213-1994 Teaching mechanical, thermal instrument transportation, storage
environmental conditions and test methods

3.1 Naming rules

The model name of the product is JY 0026-1991.

3.2 Nomenclature

The root profile model is named.

SM-GZP-D-520

Product height, 520mm Product feature code, monocotyledon Product name Pinyin prefix,
"root longitudinal profile" Product model classification code, biological model Model
example.

SM-GZP-D-520 represents a biological model, a root profile model, a monocotyledon, and a height of 520mm.

4.1 Use environmental conditions

Temperature. -10 °C ~ 40 °C, relative humidity. not more than 90%.

4.2.1 General requirements

4.2.1.1

The product should use the root tip of monocotyledonous corn as a reference material, showing the anatomical structure of the root tip. Model height is not less than 520mm, put on the stand.

4.2.1.2

Make different longitudinal sections in the middle of the root tip to highlight the vascular column, showing the root crown, meristematic zone (growth point), elongation zone, mature zone (root Hair area) and the original formation layer.

4.2.1.3

The maturity zone shall be layered (stepped) cross-section.

4.2.1.4

The characteristics of various types of cells should be obvious and correct, and the transition should be natural. Allows slightly imperfect colors or spray transitions or Location is slight.

4.2.2 Specific requirements

4.2.2.1

Root canopy. The height is about 13% of the height of the model, and it looks like a cap. Cells are large, irregularly shaped and loosely arranged, with worn surfaces shape.

4.2.2.2

Meristematic area. The height is about 19% of the model height. It should show the characteristics of square cells, large nuclei, small volume, and close arrangement without gaps.

4.2.2.3

Elongation zone. The height is about 35% of the model height. It should be shown that the cells develop from square, rectangular, and long rectangles. And shows young ducts Continuous relationship with mature ducts.

4.2.2.4

Mature area. Shows longitudinal and transverse sections of the epidermis, cortex, and vascular columns.

4.2.2.4.1

Epidermis. Shows the outermost layer of thin-walled cells and the root hairs protruding from the outer wall of the cells. Root hair should be no less than 30, and the developmental sequence is shown from short to long, at least two of which are longitudinally cross-sectioned and show nucleoli.

4.2.2.4.2

Cortex. Inside the epidermis, outer cortical cells (one to two layers), cortical thin-walled cells (multilayer, loosely arranged) and Endothelial cells (one layer, neatly arranged).

4.2.2.4.3

Vascular columns. The longitudinal and cross-sectional views of ring-shaped conduits, threaded conduits and perforated conduits, and screens shall be shown on the longitudinal section. three the thick-walled part of the catheter is shown in red. The xylem and phloem in the vascular column on the cross section should be arranged alternately.

4.2.2.5

The following parts of the model shall be affixed with name or number tags. root canopy, meristematic zone, elongation zone, mature zone, epidermis, outer cortex, endothelial layer, Vascular columns, catheters.

4.3 Materials and processes

4.3.1

The model shall be made of rigid PVC material, and the root hair may be made of soft plastic. Glass fiber reinforced plastic (FRP) or Fragile and deformable materials.

4.3.2

The content of heavy metals in the coating of the model shall conform to GB 5.2.5.4 of GB 21746-2008.

4.3.3

The cross section of the model should be neat, the structures indicated should be accurate, the decoration should be natural and correct, and the bonding and splicing should be firm.

4.3.4

The spray color transition in each area should be natural and there should be no spillage.