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Seed Viability Test Kit (Bromothymol Blue/BTB Method)

Cat No.: AK0935-500ml

Size： 500ml

Storage： at room temperature for 1 year.

Product Description：

Seed viability refers to the potential ability of seeds to germinate or the vitality of the embryo, it determines the size of seed quality and practical value, related to the amount of seeds used when sowing, the common method of measuring seed viability is the germination experimental method, that is, let the seeds absorb water and germinate under suitable conditions, and count the percentage of germinated seeds in the number of tested seeds within the specified number of days, but the conventional germination experimental method takes a long time, can not be used for emergency needs, and can not detect the vitality of dormant seeds. Commonly used detection methods include triphenyltetrazolium chloride (TTC) method, bromothymol blue (BTB) method, red ink dyeing method and fluorescence method.

The viable embryo has a respiration effect, absorbs oxygen in the air and releases carbon dioxide, carbon dioxide dissolves in water to form carbonic acid, and dissociates hydrogen ions and bicarbonate, which increases the acidity of the surrounding environment of the embryo, so bromothymol blue (BTB) can be used to qualitatively determine the change of acidity. The discoloration range of BTB is pH6.0~7.6, yellow in acidic medium, blue in alkaline medium, and green in the middle color (color change point is 7.1), so the viability of seeds can be judged according to the color difference of BTB. This method has the following advantages: fast, accurate, obvious color change, and easy to observe. This kit is intended for use in the field of scientific research only and is not intended for clinical diagnosis or other use.

Product Components：

Product Name	AK0935-500ml	Storage
Reagent(A): BTB Indicator	500ml	RT, avoid light
Reagent(B): Agar	7.5g	RT

Self-prepared Materials：

1. Ingredients: wheat, mung bean, rice, rape, peanut, corn and other plant seeds
2. Incubator
3. Petri dish

Procedures (only for reference)：

1. Soaking seeds: Soak sample seeds in warm water at 30°C for 2~6h to make seeds swell with water.

2. Preparation of BTB agar gel: take an appropriate amount of BTB indicator and agar powder, mix it according to the ratio of 10ml: 0.15g (BTB indicator: agar), and heat it in an incubator or microwave oven to dissolve. After the agar powder is completely dissolved, pour it into a clean petri dish while it is hot to make BTB agar gel, the thickness should be able to submerge the seeds, and then cool it for later use.

3. Randomly take 100 swelling seeds, the embryos are facing down, and buried neatly in BTB agar gel, with a spacing of at least 1cm.

4. Place the Petri dish in a 30~35°C incubator for 1~4h.

5. View against a blue or green background, darker yellow halos near the embryo are live seeds, otherwise dead seeds.

6. Seeds soaked in boiling water can be used for control observation.

Staining Results:

Live Seed	Yellow or yellow-green near the embryo
Dead Seed	No color change near the embryo

Calculation Method:

Observe and count 100 seeds to calculate the percentage of viable seed.

Seed viability percentage (%) = number of live seeds/100×100%

Note：

1. Thickness of BTB gel depends on the size of the seeds, in principle, it is necessary to ensure that embryo is still partially exposed above the gel after touching the bottom of the petri dish, and the gel thickness should stabilize the seeds.

2. Seeds should be intact and free from broken or moldy seeds.

3. BTB indicator should be a green or blue solution, and pH value should be appropriate at 7.1~8.5. If it turns yellow or yellow-green, it means that pH value has decreased, it can be used after adding a small amount of alkaline reagents such as dilute ammonia or sodium hydroxide. A high pH value is also not conducive to observing color changes.

4. The incubation temperature is generally 30~35 °C.