ETHEPHON EFFECT ON PEANUT SEED DORMANCY RELEASE

ABSTRACT

Dormancy is undesirable character for the large seeded peanut (Arachis hypogaea). Khon Kaen 84-7 is one of popular peanut variety for food consumption in Thailand belonging to the Virginia type. Dormant seed of cv. KK 84-7 has existing over two months after harvesting. As the ISTA rules, preheat at 40°C is recommended for breaking peanut seed dormancy but the duration is not limited depended on their varieties. The germination analysis of peanut seed is normally taken for 10 days. If breaking dormant seed is needed, the time for germination test is totally taken 17 days including preheat time. Therefore, the more rapid way and precise method in order to reduce analysis time would be studied and will be benefit for earlier issue seed certificate.

Ethephon, ethylene liberation, is plant growth regulator that has been reported to break seed dormancy. The comparison between preheat and Ethephon for breaking peanut seed dormancy were studied in this experiment. Peanut seeds were preheated at 40°C for 168 h (7 days), and another seed group was directly mixed with 0.96% Ethephon. All pretreated seeds were then planted according to standard germination test, compared with the no pretreated seed (control). The result found that 0.96% Ethephon was the most benefit to release dormant seed at fresh harvest and achieved 86% emergence with only 5% fresh seed. The normal seedlings and fresh seeds of preheat at 40°C for 168 h was 75% and 11%, respectively. Only 6% normal seedling observed in the control and most of seed were still dormant (89% fresh seeds). After storage at 20°C for 28 days, the great performances of normal seedlings was observed both Ethephon and preheat method which showed over 90% normal seedlings and 0-1% fresh seed. While, 42% normal seedlings and 32% fresh seeds were found in control. The experiment suggests that 0.96% Ethephon is the advantage method to introduce for breaking dormancy of peanut seed cv. KK 84-7 because it can release dormant peanut seed since fresh harvest. Moreover, the duration for germination test is more rapidly (only 10 days) due to preheat for 168 h is not necessary.

KEYWORDS: Peanut seed, Dormancy, Ethephon

MATERIAL AND METHOD

Fresh harvested peanut seeds cv. KK 84-7 were immediately processing as drying, cleaning, and then carried out to the lab for experiment.

RESULT

![Germination graph](Figure 1)

**Figure 1** Germination (% Normal seedling) of cv. KK 84-7 peanut seed after pretreatment with 0.96% Ethephon and preheat at 40°C for 168 h compared to untreated seed (control)

![Fresh seed graph](Figure 2)

**Figure 2** Percent fresh seed of cv. KK 84-7 peanut seed after pretreatment with 0.96% Ethephon and preheat at 40°C for 168 h compared to untreated seed (control)

CONCLUSION

0.96% Ethephon is the advantage pretreatment for breaking peanut seed dormancy according to quick and save cost compared to preheat. This method is taken only 10 days including germination test, while preheat at 40°C is extended up to 168 h or 7 days before germination test.