Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.8.No.2. 2021 (12) 87- 91 DOI: 10.32734/jpt.v8i2, August.5439

Application for Breaking Dormance and Giving Bokashi Salak Steel on the Growth of Salak (Salacca Sumatrana) Seeds

Eka Nurwani Ritonga*, Elda Sari Siregar, Muhammad. J. Syahputra, Anhar Perdana *Departmen of Agrotechnology Faculty of Agriculture, University Muhammadiyah of Tapanuli Selatan, Sumatera Utara, Indonesia.
Corresponding author**:** eka.nurwaniritonga@gmail.com

ABSTRACT

The purpose of this study was to determine the effect of breaking dormancy and giving bokashi bark leaves on the growth of salak (*Salacca Sumatrana*) seedlings . This study used a factorial randomized block design (RBD) with 3 blocks (replications). For the factor is the act of breaking dormancy and giving bokashi bark midrib. The statistical results showed that the treatment of dormancy breaking action had a significant effect, on the treatment of leaf area and plant height, the statistical results on the application of salak plant bokashi fertilizer did not show a significant effect on plant height and leaf area.
Keywords: dormancy, bokashi, salak seeds.

INTRODUCTION

Almost all areas in Indonesia can be grown by barking salak, both those that have been cultivated and those that are still growing wild. Salak (*Salacca edulis*) is one of the preferred fruit plants and has good prospects for cultivation. The fruit is loved by many people because it tastes sweet, crunchy and has high nutritional content. Kamsiati (2010).

Salak is a commodity that has received a lot of attention from the government in the development of horticulture. Actually, there are 3 striking differences in the types of barking in Indonesia, namely: Salak Jawa (*Salacca zalacca* (Geartner) Voss) which has 2-3 seeds, Balinese bark (*Salacca amboinensis* (Becc) Mongea) which has 1-2 seeds, and bark Padang Sidempuan / South Tapanuli *(Salacca sumatrana* (Becc) Mongea) with red flesh. (Haryanto, 2010)

Marketing is an action that most determines a business that will be obtained. The more open the market, the more products that can be marketed. Until now, the market demand for salak fruit is always higher than its availability. Kedi (2017) Entering the 21st century, the vision of agriculture is modern, resilient and efficient. To fulfill this vision, the mission of agricultural development is to create an agricultural community that is independent, advanced, prosperous and just, competitive and responsive to environmental changes, especially demand. To meet the increasingly high market demand, it is hoped that salak farmers must be smart in cultivating zalacca plants. Seed dormancy is related to the effort of the seeds to delay their germination, until time and environmental conditions allow for the process to continue. Marufah *et.al* (2014).

Dormancy can occur in the seed coat or in the embryo. Seeds that are ripe and ready to germinate need climatic conditions and a suitable place to grow in order to break dormancy and begin the germination process.

Salak plants can be propagated by vegetative and generative. Propagation by vegetative means has many weaknesses, including the mother plant will be damaged if its shape is carried out continuously vegetatively and the seeds obtained are limited by Cybex *et.al* (2019). Generative propagation has the advantage that it is easier to implement, has strong roots and can get more seeds. The weakness of generative propagation is that it has a hard seed coat, so it needs pretreatment so that the seeds can germinate quickly.

Utilization of agricultural technology in all fields is necessary to increase agricultural production, including fertilization, crop selection, eradication of pests and diseases, adequate water supply and pruning. Fertilization is one of the

important efforts to increase production, even now it is the dominant factor in agricultural production. At this time there are still a lot of agricultural waste that is still being left alone, even though this waste can still be used by processing it into organic fertilizer. For example, the bark leaves are often left scattered like garbage and then burned. Even though it can be used as an organic fertilizer, it is done with the help of microorganisms such as EM4 which is commonly called bokashi.

Pruning the bark leaves is done every 4 months. According to Widyorini and Soraya (2017), salak leaves contain 52% alpha cellulose, 35% hemicellulose and 29% lignin. Rahma (2006) salak leaf midrib containsfiber *states thatequifalent* with a total content of 52%. Based on predecessor research, the content of bark leaves contains water of 10.5%, C 36.5%, N 0.91%, BO 62.93%, C / N ratio 40.1%. Based on this content, it indicates that the bark leaves have the potential to be used as organic fertilizer. The purpose of this study was to determine how the effect of breaking dormancy and giving bokashi bark leaves on the growth of salak seedling (*Salcca Sumatrana*).

MATERIALS AND METHODS

This research was conducted in the village of Situmbaga, Angkola Selatan District, South Tapanuli Regency, North Sumatra Province with an altitude of ± 200400 masl. From September to November 2020. Materials used Salak plant seeds (local), Salak plant Bokashi Fertilizer, Insecticide, ZPT (Decamon), Water, Sand paper, Polybag. This research was conducted using a randomized block design (RBD), namely factorial with 3 blocks (replications). The first factor in the treatment of dormancy breaking action symbolized (P) consists of 3 levels, namely: P1 = treatment of water immersion for 5 days, P2 = friction treatment using sand paper after 5 days of immersion, P3 = ZPT treatment of salak seeds after soaking for 5 days. The second factor is giving the salak plant Bokashi fertilizer (B) consisting of 4 levels, namely; B0 = 0 gr / plot, B1 = 250 gr / plot, B2 = 500 gr / plot, B3 = 750 gr / plot.

Research Implementation

The area used is first cleaned of weeds and plant debris then hoed to a depth of approximately 15 cm so that it forms a bed, then shading is made using wood, and plastic as high as 2 m with a width of 5 m, length 15, 5 m.

The application of physical and chemical dormancy breaking treatment was carried out, soaking, rubbing, and rubbing ZPT on zalacca seeds after 5 days of immersion. The dormancy breaking treatment was carried out before planting. The application of bokashi application of salak (salak) plants, bokashi fertilizer, was given when filling the soil into polybags by combining the bokashi with the soil after weighing the bokashi which is then mixed with the so

RESULTS AND DISCUSSION

Table 1: Percentage of Sprouts

Treatment	Sprouts (%)
P_1 (water immersion for 5 days)	**108 seeds (100%)**
P_2 (friction treatment using sand paper after 5 days of immersion)	**108 seeds (100%)**
P_3 (ZPT treatment of salak seeds after soaking for 5 days)	**108 seeds (100%)**

The table above showed 100% germination growth with dormancy breaking action treatment.

The results of the average leaf area of plants with dormancy breaking action can be seen in Table 2

.

Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.8.No.2. 2021 (12) 87- 91 DOI: 10.32734/jpt.v8i2, August.5439

Table 2: Average Leaf Area with Dormancy Breaking Action

Treatment Effect of Dormancy Breaking Action	Leaf Area (cm^2)
	12 mst
P_1 (water immersion for 5 days)	78.41b
P_2 (friction treatment using sand paper after 5 days of immersion)	99.72a
P_3 (ZPT treatment of salak seeds after soaking for 5 days)	93.03ab

Table 2 above showed in treatment friction using sand paper after 5 days of immersion gave the highest point value 99.72 cm^2, and give significant effect to other treatments. This is because friction after 5 days of immersion make water absorbed to tissue of salak seed and stimulated it growth (Sukewijaya et al.,2009)

Table 3: Average leaf area Treatment Salak plant bokashi

treatment Treatment of Salak plant Bokashi	Leaf area (cm^2)
	12 wap
B_0 (0 gr / plot,)	94.34
B_1 (250 gr / plot)	83.70
B_2 (500 gr / plot)	94.66
B_3 (750 gr / plot)	83.70

Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.8.No.2. 2021 (12) 87- 91 DOI: 10.32734/jpt.v8i2, August.5439

Application of Bokashi fertilizer did not give significant effet to leaf area indeks, the higest leaf area indeks in B2 ((500 gr / plot) 94,66 $cm^2$and not significant to control 94,34 cm^2.

The results of the interaction between the action of breaking dormancy and the provision of salak plant bokashi can be seen in Table 4.

Table. 4 Interaction of Leaf Area with Treatment of Dormancy Breaking Action and Giving Bokashi of Salak Plants

Treatment	B_0	B_1	B_2	B_3	Mean
P_1 (water immersion for 5 days)	85,82ab	79,41ab	60 , 74b	87,68ab	**78,42b**
P_2 (friction treatment using sand paper after 5 days of immersion)	110,44a	91,14ab	114,10a	83,22ab	**99,72a**
P_3 (ZPT treatment of salak seeds after soaking for 5 days)	86,79ab	80,56ab	109,14a	95,67ab	**93,03ab**
Average	**94,34a**	**83,70a**	**94 , 66a**	**88.85a**	**-**

Information: The numbers that are followed by the same letter in the column and row show not significantly different according to the 5% LSD test

The interaction table of the treatment of dormancy breaking action and the application of Bokashi of Salak plants, shows the highest leaf area observation results in treatment P_2 (99.72 cm^2), followed by P_3 (93.03 cm^2), and the lowest result in treatment P_1 (78.41 cm^2).

The table above shows 100% germination growth, with dormancy breaking action, where the dormancy breaking action is done by soaking the zalacca seeds with water (H_2O), scratching with sand paper around the buds, then applying ZPT (Decamon) which is in the form of a liquid. This is because the treatment by immersing in water has an effect because water easily absorbs into the salak seed embryos, thus spurring the activity of the seed embryos to germinate, immersion is carried out aimed at softening the hard seed coat so that the hard skin can melt.

The treatment of salak plant bokashi showed no significant effect, presumably due to environmental factors, which are a complex system outside the individual that affects the growth and development of the organism, hence the treatment given has no effect.

The interaction table of the treatment of dormancy breaking action and giving of salak plant bokashi, shows the highest leaf area observation results in treatment P_2 (99.72 cm^2), followed by P_3 (93.03 cm^2), and the lowest result in treatment P_1 (78.41 cm^2).

CONCLUSION

The germination of salak seeds grew 100%, and when given bokashi the salak plants did not show a significant effect, presumably due to environmental factors which are complex

systems outside the individual that affect the growth and development of organisms.

REFERENCES

Agri Forum, 2013. Peluang Usaha Prospektif Budidaya Salak.Yogyakarta.

Cybex., 2019. Perbanyakan Pada Tanaman-salak, Salak Padang Sidempuan (S.Sumatrana (becc)) dan Salak Jawa (S. Zalacca var. Zalacca (becc) mogea) skripsi program study agronomi Universitas Sebelas Maret. Surakarta.

Haryanto, F.F. 2010. Analisis Kromosom Dan Stomata Tanaman Salak Bali (*Salacca Zalacca,var.Amboinensis* (becc) *Mogea*) salak Padang Sidempuan (*S.Sumatrana* (becc)) dan salak Jawa (*S. Zalacca var. Zalacca* (becc) mogea) skripsi program study agronomi Universitas Sebelas Maret.

Kamsiati, E. 2010. Peluang pengembangan teknologi pengolahan keripik buah dengan menggunakan penggorengan vakum. Jurnal Litbang Pertanian, 29(2),

Kamsiati, E. 2010. Peluang Pengembangan Teknologi Pengolahan Keripik Buah Dengan Menggunakan Penggorengan vakum. Jurn Litbang Pertanian . Vol 29 no.2 Tahun 2010

Kedi Suradisatra, Dwi Priyanto, Semedi dan Sri Asih Rohmani. 2017. Menuju Pertanian Modern Berkelanjutan. Badan Penelitian dan Pengembangan Pertanian Kementerian Pertanian.

Kedi Suradisatra, Dwi Priyanto, Sumedi dan Sri Asih Rohmani.2017. Menuju Pertanian Tangguh. litbang pertanian . vol 29 no.2 tahun 2010.

Rahma Kaliky, Sugeng Widodo dan Nur Hidayat, Persepsi Petani Terhadap Pemanfaatan Pelepah, Daun Salak Untuk Industry Pulp dan Konservasi Lingkungan Pertanaman Salak Pondok Dikabupaten Sleman. Temu Teknis Nasional Tenaga Fungsional Pertanian 2006.491-492.

Ramli, Wahyuni Dwi. 2009, Ekologi dan Lingkungan Hidup, Gorontalo

Sukewijaya IM, N Rai, dan MS Mahendra. 2009. Development of salak bali as an organic fruit. As. J. Food Ag-Ind. Special Issue: S37-S43.Surakarta.

Sutopo lita. 2004. Teknologi Benih, PT Raja Grafindo Persada. Jakarta

Widyorini. R dan Soraya. D. K. 2017. Karakteristik Pelepahsalak. https://slidedocument.org