Registration Form

5th International Conference on Bioscience and Technology
September 20, 2014
International Research Collaboration on Bioscience and Technology : for a Better Achievement and Sustainability
Udayana University, Denpasar
Bali, Indonesia

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Paper/Poster Title : **PHENOTYPIC AND GENOTYPIC OF SALAK (*Salacca zalacca* var. amboinensis) cv. GULAPASIR ON DIFFERENT GROWING ENVIRONMENTS**

I Will attend on 5th ICBB Bali as (Please check appropriate box)**:**

☑ Oral presenter
☐ Poster presenter
☐ General participant

JADWAL ACARA

THE 5th INTERNATIONAL CONFERENCE ON BIOSCIENCE AND BIOTECHNOLOGY

20 SEPTEMBER 2014

Time	Activities	Venue
08:00-09:00	**Registration**	School of Postgraduate 3rd floor Udayana University
09:00-09:30	**Opening Ceremony**	
09:00-09:10	Welcome speech by Dean Faculty of Agriculture Udayana University	
09:10-09:20	Welcome speech by Japan Consulate General	
09:20-09:30	Welcome speech and officially opened the conference by Rector of Udayana University	
09:30-10:00	**Keynote Speaker** **Prof. Dr. Mamoru YAMADA** (Dean of Faculty of Agriculture Yamaguchi University) "Potentials of Microbes in Tropical Areas and Their Application for High-temperature Fermentation"	
10:00-11:30	**Section I Plenary Speaker (invited speakers)**	
10:00-10:15	Prof. Yamashita - JSPS ASEAN Coordinator	
10:15-10:30	Mr. Daisuke Yamada - JSPS	
10:30-10:45	Akita University Center for Research and IPR	
10:45-11:00	Akita University	
11:00-11:30	Discussion	
11:30-13:00	**Section II Plenary Speaker (invited speakers)**	
11:30-11:45	Prof. Irfan D. Priambada, Ph.D - UGM	
11:45-12:00	Kahar Muzakar, Ph.D. (Dikti/Univ. Jember)	
12:00-12:15	Prof. I G.P. Wirawan, Ph.D (Unud)	
12:15-12:30	Prof. I M.S. Mahendra, Ph.D. (Unud)	
12:30-13:00	Discussion	
13:00-14:00	**Lunch**	
14:00-16:45	**Parallel session presentation**	School of Postgraduate and Faculty of Agriculture Udayana University
16:45 -17.00	**Closing ceremony**	School of Postgraduate 3rd floor Udayana University

5th INTERNATIONAL CONFERENCE ON BIOSCIENCE AND BIOTECHNOLOGY

CERTIFICATE

This is to express our sincere and gratitude for the support and participation of

I KETUT SUMANTRA

Who participate as a ORAL PRESENTER in the conference of the 5th ICBB

"INTERNATIONAL RESEARCH COLLABORATION ON BIOSCIENCE AND BIOTECHNOLOGY FOR A BETTER ACHIEVEMENT AND SUSTAINABILITY"

Which took place in Udayana University, Denpasar, Bali on September 20, 2014

Dean of Faculty of Agriculture

Prof. Dr. Ir. I Nyoman Rai, MS

Steering Committee of ICBB 2014

Prof. I.G.P. Wirawan, Rh.D

PHENOTYPIC AND GENOTYPIC OF SALAK (*Salacca zalacca* var. amboinensis) cv. GULAPASIR ON DIFFERENT GROWING ENVIRONMENTS

I KETUT SUMANTRA

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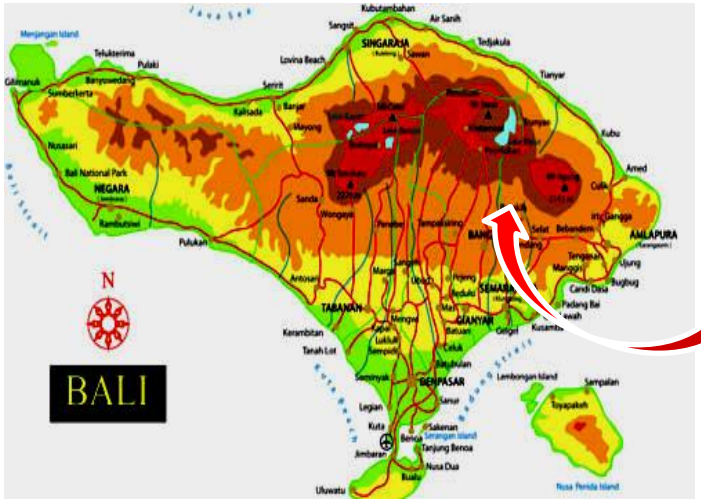
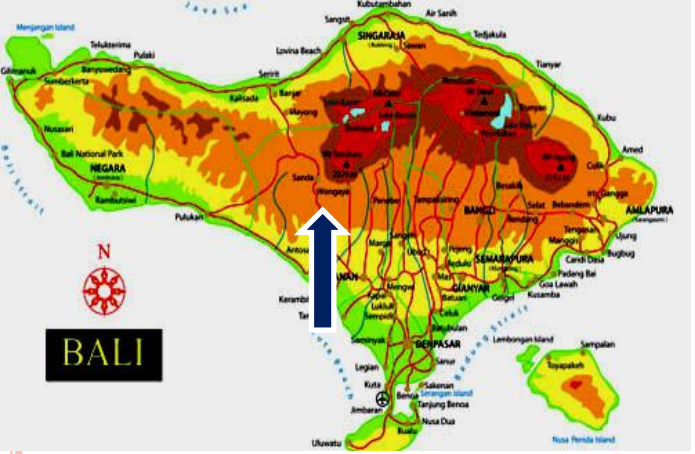


Why Salacca is important

Bali salacca plants (*Salacca zalacca* var. Amboinensis) is an Indonesian indigenus commodity

The Advantages: sweet fruit flavors although the fruit is still young,thick flash, seeds are not attached to the fruit flesh, price 4-5 times more expensive than bali salak



Potential and Opportunities :

On Year 2008 Salacca Demand = 420,000 tons per year; Export 32.75 tons and the rest to the needs of the domestic market. On the same time Bali salak production : 42.28 tons. The development of agro-tourism and agro-industry

At the beginning, the developments of Gulapasir salacca were limited in Karangasem regency. Now, it has been extended to the other regencies such us Tabanan, regencies

THE DIFFERENT OF SALACCA

Salacca zalacca var. zalacca

Decoesis:

Inflorescence are male and female inflorescences on different plants

Salacca zalacca var. amboinensis

Monoesis :

Separate male flowers and female flowers, but there is in one plant

It can be developed by using seeds(agamospermi) (Kriswiyanti *et al*., 2008)

The Question is ?

Whether this phenotypic and genotypic property if developed into other areas is still the same as in the area of origin in Sibetan Karangasem.

Research aims

To study the variability of phenotypic and genotypic of Gulapasir salacca plants growing on different environments in Bali

Expected

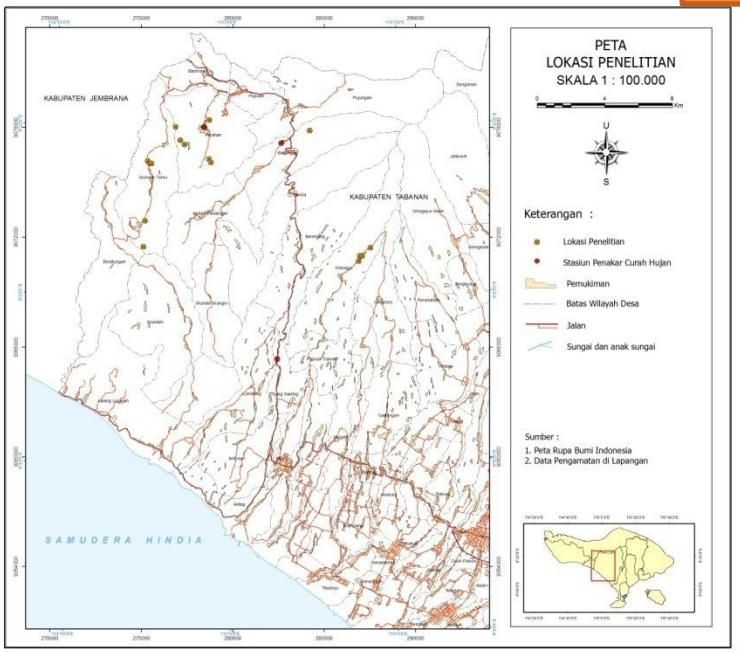
To provide information and an overview of the phenotypic and genotypic variability Gulapasir salacca plants growing in different conditions

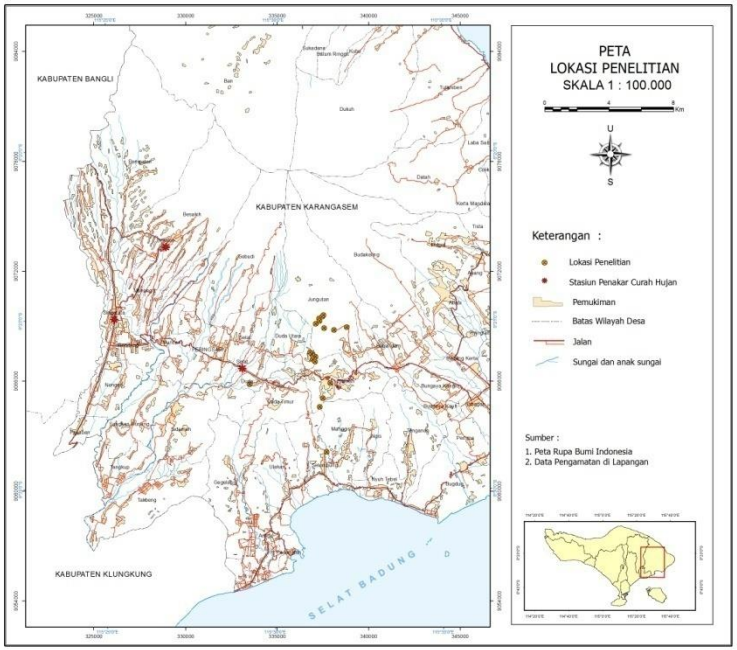
Selection of the parent plant in order to get aquality seeds for sidling practices

RESEARCH METHOD

Start Dec 2012- March 2012

Loction



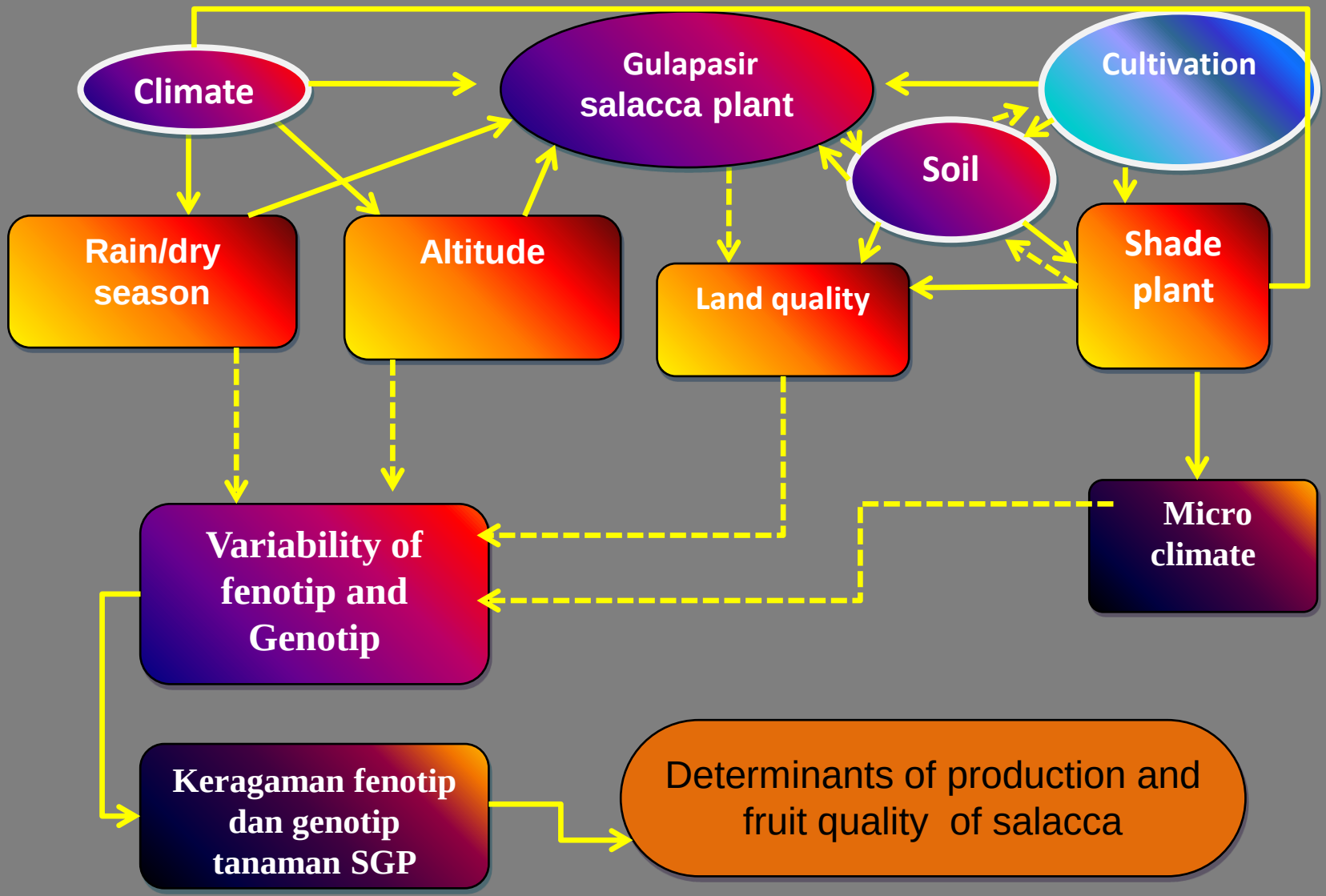


TABANAN

Saribuana (T-1) 460 m asl,
Pajahan (T-2) 570 m asl and
Bangsing (T3) 700 m asl

KARANGASEM

Telaga Sibetan (A-1) 450 asl,
Kecing (A-2) 550 m asl,
Jungutan (A-3) 670 m asl,



The basic framework of thought

IV. METODE PENELITIAN

Phenotype observ ⇨ morphological appearance of plants

Genotype observation ⇨ Analyze the DNA banding pattern
Using RAPD techniques

Phenotype observ ⇨ the book's Individual Guide Testing salacca species (Deptan, 2006) : The number of leafs, the length of leaf, the wide of leafs, the length of sphata, the length of flower without sphata, the number of flower per sphata, the number of fruits per cluster, the number of seed, thick flash, fruit shape.

RAPD Analysisi :

1. DNA isolation using Pamidimarri *et al*. (2009) procedures.
2 . Amplification reaction and electroforesis
3. Selection of primary Nandariyah (2009) primary OPA (OPA3, OPA4, OPA6, OPA11, OPA 15, OPA16, OPA 17, OPA18 and OPA 19

Analysis of data

Phenotipic analiysis : (1) Barlett test, (2) The value ratio of variance with standard deviation and cluster analiysis

Analysis of the data genotype by comparing the banding pattern : score 1 when bands that appear; Score 0 if the bands not appear. Cluster analysis use UPGMA with *SIMQUAL function. The correlation by using* NTSYS programe with *MXCOMP function. The similarty* of genotype were calculated based on the coefficients Dice :

$$S = \frac{2\,n\,ab}{na + nb}$$

Remarks : S = similarity coeficient
a and b = two individual were compared
n ab = the number of DNA bands the same position both on the individual a or b
na = the number of DNA bands on individual a
nb = the number of DNA bands on individual b

RESULTS AND DISCUSSION

Table 3. Phenotypic characters (quantitative) based on Bartlett test and ratio of the variance ( ) with standard deviation (Sd)

Characters	Locations						Bartlett Test		Ratio dan Sd				
	A1	A2	A3	T1	T2	T3	X^2 hit.	P-value	^2f	Sd_{2f}	$2Sd_{2f}$	C	CC
Number of leaflets	75.57	76.43	75	76.29	75.57	75	4.17 tn	0.525	3.231	0.044	0.11	L	S
Length of leaftets (cm)	57.86	57.89	57.81	59.14	59.57	59.43	2.85 tn	0.724	6.827	0.063	0.127	L	S
The Width of leaf (cm)	3.74	3.86	3.81	3.73	3.7	3.63	0.30 tn	0.908	0.161	0.011	0.021	L	S
The length of sheath (cm)	27.57	27.59	27.21	26.27	26.27	25.76	0.69 tn	0.632	8.198	0.068	0.136	L	S
The length of flower without sheath (cm)	12.81	12.76	12.74	12.64	12.69	12.54	11.84*	0.037	0.086	0.012	0.014	L	L
Number of flowers bunches $^{-1}$	1.86	1.71	1.71	1.57	1.57	1.43	0.21 tn	0.958	0.333	0.014	0.028	L	S
The number of fruit bunches^{-1}	21.29	20.57	18.57	18.29	19.29	16.86	21.21 **	0.001	5.93	0.059	0.121	L	L
The number of seed fruit^{-1}	1.57	1.57	1.14	1.57	1.57	1.14	0.64 tn	0.671	0.251	0.012	0.024	L	S
Thick flesh fruit (cm)	0.69	0.64	0.57	0.61	0.61	0.4	15.60 **	0.008	0.013	0.003	0.005	L	L
Ratio L/D	0.63	0.59	0.81	0.73	0.7	0.61	5.40 tn	0.369	0.01	0.002	0.004	L	S

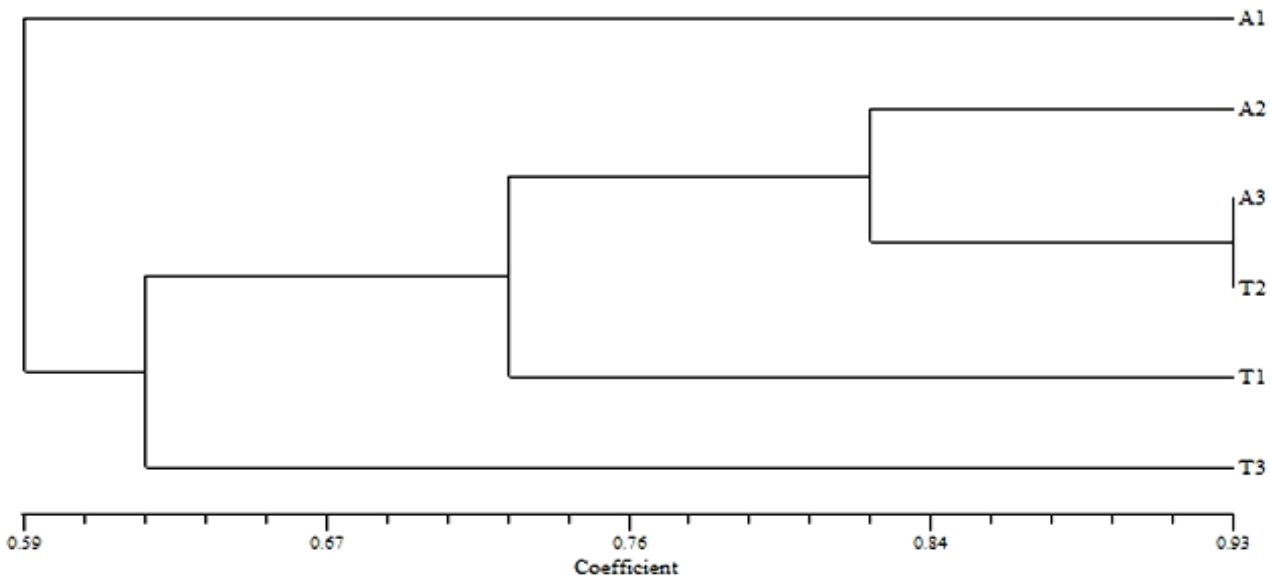


Figure 1. Phenotypic Dendrogram of Gulapasir salacca from six different locations (A= Karangasem: A1=Telaga; A2=Kecing; A3 =Jungutan; T= Tabanan : T1= Saribuana; T2=Pajahan; T3 = Bangsing)

Table 4. Level of polymorphism of three primers used based on the pattern of DNA bands of Gulapasir salacca of six different location

Primer	**nucleotide sequences 5'……3'**	**Total number of bands**	**The number of polymorphic**	**The number of monomorphic**
OPA 3	AGT CAG CCAC	15	11 (73.33%)	4 (26.66%)
OPA 17	GAC CGC TTGT	8	8 (100%)	0
OPA 19	CAA ACG TCGG	5	5 (100%)	0
Total		28	24 (85.71%)	4 (14.28%)

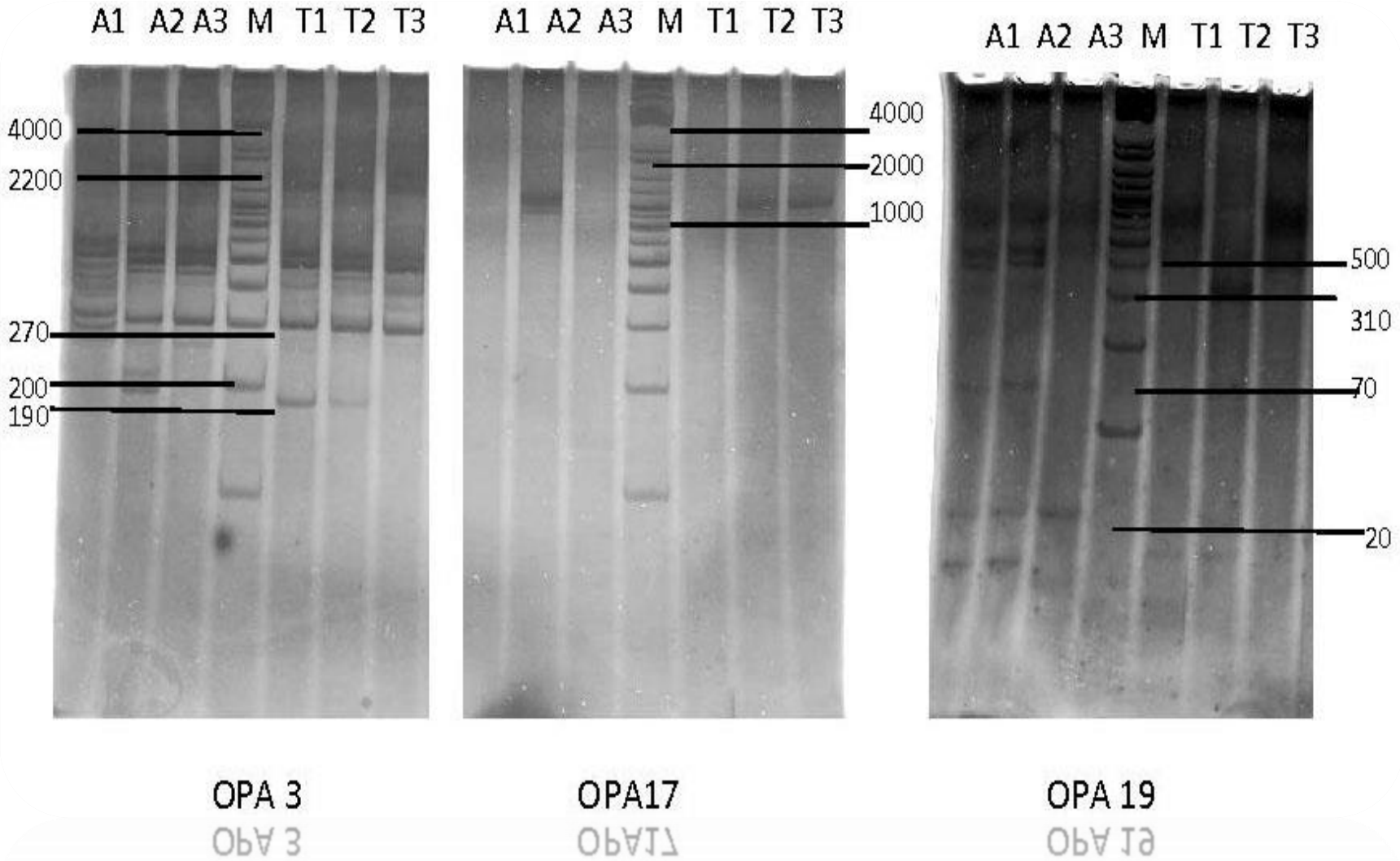


Figure 2. DNA banding pattern of salacca from various locations Based on 3 random primer: OPA3, OPA17, OPA 19 Description: M = Marker 1 kb, A = Karangasem: A1 (Telaga), A2 (Kecing), A3 (Jungutan), T = Tanbanan : T1 (Saribuana), T2 (Pajahan), T3 (Bangsing).

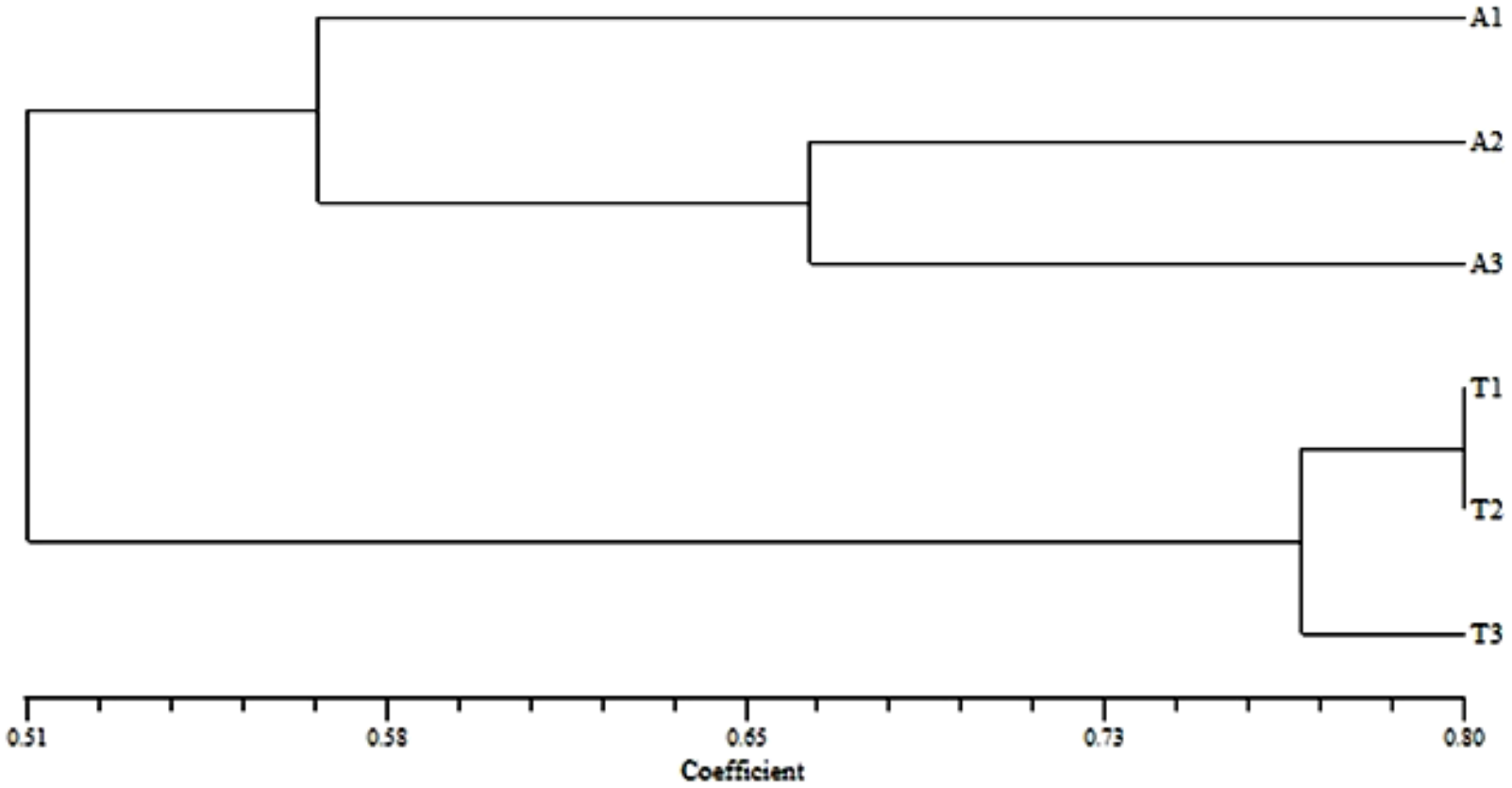


Figure 3. Dendrogram DNA banding pattern of Gulapasir salacca from six different locations (A = Karangasem; A1 = Telaga; A2 = kecing; A3 = Jungutan, T = Tabanan: T1 = Saribuana; T2 = Pajahan; T3 = Bangsing)

CONCLUSSION AND SUGGESTION

Salacca planted in Tabanan and Karangasem showed phenotypic and genotypic variation. Phenotypic similarity coefficient based on ten quantitative characters ranged from 0.58 - 0.93 and the coefficient of genetic similarity based on three primary ranges from 0,50 - 0.80 which was divided into two main groups, namely groups of Karangasem and Tabanan Gulapasir salacca.

For the program of expansion of Gulapasir salacca should be:

The selection of mother plants for seed candidates were advised to take the seeds from the plants that were already adapted to the local environment.

To reduce variation in plant propagation Phonotype of Gulapasir salacca was done vegetatively by grafting system or by tissue culture techniques.



Thank you

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