Komentar untuk karya penelitian : Judul Artikel: Effects of Varieties and Cooking Methods on Physical and Chemical Characteristics of Cooked Rice. Penulis: Dr. Merynda Indriyani Syafutri, S.TP., M.Si. Nama Jurnal: Rice Science, Volume Jurnal: 23, Nomor Jurnal: 5, Tahun Terbit Jurnal: 2016, Halaman: 282-286, ISSN: 1672-6308, Penerbit: Elsevier.

Perlu penjelasan karil ini dapat dihasilkan pada masa studi S3?

Jawaban/Penjelasan :

Artikel ilmiah ini merupakan bagian dari penelitian yang berjudul "**Characteristics of Swamp Rice in South Sumatera, Indonesia"** yang didanai oleh International Rice Research Institute (IRRI) bekerjasama dengan Pusat Unggulan Riset Pengembangan Lahan Sub Optimal (PUR-PLSO) Universitas Sriwijaya pada tahun 2015. Penulis mendapatkan pendanaan penelitian ini untuk tahun 2014-2015. Salah satu *output* penelitian tersebut adalah publikasi di jurnal terindeks Scopus. Oleh karena itu, artikel ilmiah ini dipublikasikan pada "Rice Science" tahun 2016. Pada tahun tersebut, penulis memang sedang melaksanakan studi S3, tetapi penelitian tersebut tidak berkaitan dengan penelitian Disertasi penulis.

RESEARCH REPORT

CHARACTERISTICS OF SWAMP RICE IN SOUTH SUMATERA, INDONESIA

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INDRALAYA
2015

Research Title	:	Characteristics of Swamp Rice in South Sumatera, Indonesia
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Palembang, June 30, 2015
Researcher,

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SUMMARY

South Sumatera is one of provinces in Indonesia which has wide swamp land. One of the agricultural commodities cultivated by inhabitants in swamp land is rice. Rice is a main food for most of Indonesian people. The rice produced from rice plant of swamp land have certain characteristics. The characteristics are influenced by the rice swamp varieties and conditions of swamp land where rice is grown. Characteristics of rice will affect the quality of rice produced. The objective of this research was to investigate and to observe the characteristics of swamp rice originating from South Sumatera province.

Substances that be used in this study were some of lowland swamp rice varieties derived from four districts in South Sumatera : Ogan Ilir, Ogan Komering Ilir, Banyuasin, and East OKU. This study consisted of three parts, namely analysis of rice characteristics, analysis of the rice characteristics with different cooking methods, and analysis of the glycemic index of the rice. The first part (analysis of rice characteristics) consisted of five stages. The first stage was survey of rice varieties (in Ogan Ilir, Ogan Komering Ilir, Banyuasin, and East OKU). The second was the proximate test in lowland swamp rice. The third was physical and chemical characteristics test. The fourth stage was a sensory test in lowland swamp rice (using hedonic test), and the fifth stage was the glycemic index measurement of rice. The second and third parts of this study using Factorial Randomized Block Design with two treatment factors and repeated three times. Treatment factors were rice variety (A) and the cooking method (B). The first factor consisted of two levels : Ciherang (A_1) and Ciliwung (A_2), where as the second factor consisted of three levels : *liwet* (traditional method) (B_1), combination of *pengaronan* (boiling) and steaming (B_2), and using rice cooker (B_3).

The result showed that the varieties of rice in lowland swamp area of South Sumatera were IR 10, IR 42, IR 64, Makongga, Ciherang, Ciherang Dempo, Ciliwung, Ciliwung Jumbo, and Rojo Lele. The lowland swamp rice in South Sumatera contained moisture content 11.070 to 13.905%, ash content 0.367 to 0.642%, protein content 2.629 to 11.527%, fat content 0.255 to 2.345%, and carbohydrate content 72.105 to 83.714%. The chemical characteristics of lowland

swamp rice included dietary fiber content 4.952 to 7.992%, crude fiber 1.747 to 5.017%, total starch 67.402 to 69.328%, amylose content 12.634 to 31.181%, while the physical characteristics included length of rice was in the range of 6.03 to 6.91 mm, the thick 1.51 to 1.70 mm, texture of cooked rice 21.133 to 49.100 mm/s, lightness 66.100 to 74.067%, chroma 11.250 to 13.700%, hue 65.950 to 71.100^{o}, the setback viscosity 1360 to 4359 cP, breakdown viscosity 329 to 1795 cP, pasting temperature 83.75 to 87.85 ^{o}C, 9 to 10 minutes gelatinization peak.

Panelist provided an assessment “dislike” to “common” for aroma and “dislike” to “like” for color of lowland swamp rice (milled rice). Panelist also provided an assessment “dislike” to “common” for aroma, color, texture, and taste of lowland swamp rice (cooked rice). The result of this research also showed that IR 10, IR 42, and Ciherang in OKI and OI had a low glycemic index value, while Rojo Lele, Ciliwung, Ciliwung Jumbo, IR 64, Mekongga, and Ciherang in East OKU and Banyuasin had a medium glycemic index value. The rice that had a high value of glycemic index was Ciherang Dempo variety.

The result of the second part showed that the cooking method had significant effect on texture lightness, chroma, hue and water content of cooked rice, as well as on hedonic test for the attributes of color and texture of cooked rice. The treatment of A_2B_3 (Ciliwung variety and cooked with rice cooker) was selected as the best treatment based on sensory test with the lightness of 76.20%, chroma 5.63%, hue 68.20^{o}, texture 27,60 gf, water content 57,37% nand hedonic scores on color, texture, flavor and taste were 3.20, 3.12, 2.72, 2.92, respectively.

The result of the third part showed that the highest GI value (71.63) found on A_2B_2 treatment (Ciliwung variety and combination of boiling and steaming method), while the lowest GI value (52.87) found on A_1B_3 treatment (Ciherang variety and cooking rice using rice cooker). The cooking method had significant effect on texture of cooked rice in the hours-0, 1, 2, 3, 4, 5 and 6, while variety of rice and interaction between cooking method and variety of rice had no significant effect on texture of cooked rice. The cooking method had significant effects on lightness and hue of cooked rice in the hours-0, 1, 2, 3, 4, 5 and 6, while variety of rice and interaction between cooking method and variety of rice had no significant effect on lightness of cooked rice. The cooking method, variety of rice and interaction between cooking

method and variety of rice had no significant effect on chroma of cooked rice in the hour-0 and 1, but the cooking method and variety of rice had significant effect on chroma of cooked rice in the hours-2, 3, 4, 5 and 6. The first rank of the stickiness level of rice was treatment A_2B_3 (Ciliwung variety and cooking rice using rice cooker), while the first rank of whiteness level of rice was treatment A_2B_2 (Ciliwung variety and combination of boiling and steaming method.

PREFACE

Praise be to Allah SWT because of His blessings and His mercy, the research report titled "Characteristics of Swamp Rice in South Sumatra, Indonesia" can be resolved. The author would like to thank profusely to the International Rice Research Institute (IRRI), which had provided funding for this research.

The authors also thank the Rector of the Sriwijaya University and Research Center of Sub-Optimal Land (PUR-PLSO) Sriwijaya University which had provided an opportunity for the author to do this research. The author also would like to thank the laboratory technicians, students, panelists and volunteers who had provided support for this research.

Hopefully this research report beneficial to the progress of science, especially knowledge of the characteristics of the swamp rice. Aamiin.

Palembang, June 2015

Researcher