

Journal of Agriculture and Rural Development  
in the Tropics and Subtropics

Beiheft 88

“Development of animal health and production  
for improving the sustainability of livestock farming  
in the integrated agriculture systems”

Bambang P. Priosoeryanto  
M. Agus Setiadi  
letje Wientarsih  
Agik Suprayogi  
Risa Tiuria  
Dewi Apri Astuti

PROCEEDINGS OF THE MINI WORKSHOP  
Southeast Asia Germany Alumni Network (SEAG)  
April 25<sup>th</sup>-26<sup>th</sup>, 2005  
Bogor - Indonesia

## Preface

In the development of integrated animal health and production for improving the sustainability of livestock farming in the integrated agriculture systems several factor has been involved. For the sustainability in the animal health sector, three main issues has been recognized, there were 1) strategic animal diseases (13 animal diseases), 2) animal and environment health and 3) improvement of reproductive performance in order to increase the livestock population. To solving the problem of animal health, the main factor that should be prioritises is an animal health technology which including development and implementation of indigenous knowledge: phytomedicine, vaccine technology, bio-security and others related factors.

In the livestock production sector, the main focus is on the sustainability of integrated livestock production. The other problem is the condition of low consumption on the animal protein; animal protein is the essential food substance that cannot be substitute by other non-animal protein. The important component for the development of livestock production are good reproduction and breeding system, development and implementation of local resource of animal feed, restructuring of livestock industry, post harvest technology, veterinary public health (food safety) including market regulation.

In the integrated agriculture, agro-sylvo-pastoral (ASP) system is to believe as one activity that could reduce poverty, increasing farmer income as well as increasing the condition of environment. The strategy that will be implement is the establishing of the ASP institution, implementation of good management and local knowledge as well as improving the productivity. The problem that still inhibit on the implementation of ASP is that there are some differences in the perception on ASP between the sector of agriculture, animal husbandry and forestry, therefore the same perception between the three sectors in the integrated using of forest for agriculture and livestock activities, including the reclamation of former mining land, plantation and fresh water fisheries should be taken as a priority.

There are 4 important points resulted from the Miniworkshop :

1. Recommendations resulted from the Miniworkshop will be deliver to the policy maker, farmers and others related institutions.
2. The points resulted from the Miniworkshop is hoping could be used as a recommendation in the Livestock and Animal Health Regulation that now is on the way of preparation and debate in the Parliament.
3. Action plan from this Miniworkshop will be taken on the kind of proposal and will be submit to the central and local government as well as international institution especially in the Germany or others countries and will be coordinated by the SEAG Coordinator as one of SEAG activity.
4. The next propose activity will be a miniworkshop on the "Development and Implementation of Indigenous Knowledge" in Manado or Kupang on the middle of 2006 or 2007.

Organizing Committee  
January, 2006

## Table of Contents

Physiological Status of Indoor Sheep in the Tropical Rain Forest (HPGW) Environment (Agik Suprayogi and D.A. Astuti) .....	1
The Role of Reproductive Health Management on Dairy and Beef Cattle Farming System (Mohamad Agus Setiadi) .....	7
Tripartite Cooperation: A Model For Developing the Sustainability of Peranakan Etawah Goat Production In Indonesia (Akhmad Sodik) .....	13
In Vitro Anti-Proliferation and Anti-Invasion Activities of the Combination Between Recombinant Canine Interferon (rCaIFN) with Luffa cylindrica Seed Methanol and Chloroform Extracts on MCM-B2 Derived Tumor Cell Line In Collagen Gel Medium (Bambang Pontjo Priosoeryanto, Gunanti, H Huminto and Ros Sumarny).....	18
Immunoglobulin Titer of Suckling Kids as a Result of Colostrum Intake (Daisy D.S.J. Tambajong).....	27
Studies On Indigenous Sheep Productivity Under The Tropical Rain Forest Area (D.A. Astuti and A. Suprayogi) .....	38
The Solubilization of Macrominerals and Ruminal Degradation of Selected Tropical Tree Legumes (Idat Galih Permana and Despal) .....	44
The Study of Phytochemistry of Java Ginseng Compare to Korean Ginseng (Yulia, Ietje Wientarsih and Norman Razief A) .....	53
Essential Oils as a Multi-function Feed Additive (MFA) to Improve Broilers Performance, Metabolism, Dung Consistency and Efficiency of Production (Maria Ulfah) .....	58
The Growth of Trichantera gigantea as Effect of Fertilization and Different Stem Cutting (Rahmi Dianita).....	64

### Conclusions

Although, ruminal DM biodegradation and cumulative gas production of PI, SG, GS, CC and LL were not significantly different, however, the degradation pattern or organic matter (total VFA) distinguished a different rate of degradable material available for rumen which should be taken into consideration by using them in a ration formulation. The Ca and Mg solubility of LL was higher than other legumes. However, PI was a good soluble P source. Generally, SG is a good protein source and can be mixed with other mineral supplement legume.

### Acknowledgement

This work was supported by a Research Grant of DUE-like, Program study of Animal Nutrition and Feed Science, Bogor Agricultural University Batch III.

### References

- Close, W. and K. H. Menke. 1986. Selected Topics in Animal Nutrition. The Institute of Animal Nutrition, University of Hohenheim. Germany.
- Durand, M. and R. Kawashima. 1980. Influence of mineral in rumen microbial digestion. In: Y. Ruckebusch and P. Thivend (Eds.). Digestive Physiology and Metabolism in Ruminants. MTP Ltd. Lancaster. 275-408.
- Hungate, R. D. 1966. The Rumen and Its Microbes. Academic Press. New York.
- Khamsekhiew, B., J.B. Liang., C.C. Wong and Z.A. Jalan. 2001. Ruminal and intestinal digestibility of some tropical legume forages. *AJAS*. 14:321-325.
- McDonald, P., R.A. Edwards, J.F.D. Greenhalg, and C.A. Morgan. 1995. Animal Nutrition. 5<sup>th</sup> Ed. Longman Scientific and Technical. New York.
- Ørskov, E. R. 1982. Protein Nutrition in Ruminants. Academic Press. London.
- Ørskov, E. R. and P. Mc Donald. 1979. The estimation of protein degradability in rumen from incubation measurements weighed according to rate of passage. *J. Agri. Sci.* 1979:499-503.
- Serra, S. D., A.B. Serra, T. Ichinohe and T. Fujihara. 1996. Ruminal solubilization of macrominerals in selected Philippine forages. *AJAS*. 6:75-81.
- Sutardi, T. 1986. Pemberian Pakan Sapi Perah. Fakultas Peternakan IPB
- Sutardi, T. D. Sastradipradja, T. Toharmat, A. Sardiana dan I.G. Permana. 1994. Peningkatan produksi ternak ruminansia melalui amoniasi pakan serat bermutu rendah, defaunasi dan suplementasi protein tahan degradasi dalam rumen. Fakultas Peternakan, Institut Pertanian Bogor. Bogor.
- Underwood, E. J. and N. F. Suttle. 1999. The Mineral Nutrition of Livestock. 3<sup>rd</sup> edition. CABI Publishing. London.

## The Study of Phytochemistry of Java Ginseng Compare to Korean Ginseng

Yulia<sup>1</sup>, Ietje Wientarsih<sup>1</sup>, and Norman Razief A<sup>1</sup>

### Abstract

*In asian countries, the Korean ginseng (Panax schinseng) has been well known as a tonic, treatment for Diabetes Mellitus, effective to develop energy, sex ability, to cure eyes and hearing to develop brain efficiency and to long life, however, due to the expensive market price, Indonesia are looking for other treatments through medical plants such as java ginseng. In Indonesia, Korean ginseng has long been used by people as a tonic and in Indonesia, there are many vegetables and herbs that have been wide by used as traditional medicine plants since ancient times. One of traditional medicines is Java ginseng (Talinum paniculatum Gaertn) which belong to Portulacaceae family. Java ginseng is a kind of herbal with 70 - 80 cm height. Java ginseng origin is from American tropics. There are two kinds of species Talinum paniculatum Gaertn and Talinum triangglukosare Gaertn. Pharmacological effect of ginseng is adaptogen. The compound of adaptogen is able to increase energy, more concentration, sex ability and also has the characteristic to normalize body activity. The purpose of this study is to compare the contains through the phytochemistry screening method between Java ginseng and Korean ginseng. Results show that Java ginseng has active compounds such as tannin, alkaloid, saponin and flavonoid. Korean ginseng has active compounds such as terpenoid, alkaloid, saponin and flavonoid. It can be conclude from this study seem that Java ginseng has the same active compounds with Korean ginseng except tannin and terpenoid.*

**Keywords:** *Livestock, traditional medicine.*

<sup>1</sup> Faculty of Mathematic and Chemistry, Dept. of Biochemistry, IPB, Bogor, Indonesia.

<sup>2</sup> Faculty of Veterinary Medicine, Dept. of Veterinary Clinic, Reproduction and Pathology, IPB, Bogor, Indonesia.,

## Introduction

Many people especially in Asian countries are turning to herbs as adjuncts to other treatments because herbal remedies are seen as less expensive and less toxic.

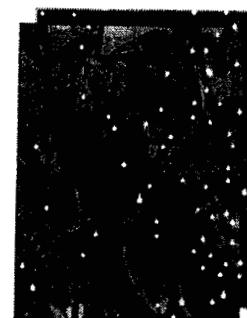
In Indonesia, Korean ginseng has long been used by people to guard against Diabetes Mellitus, rheumatism, fever, insomnia. According to Tenney (1996), ginseng is a medicinal plant which can use as a tonic and adaptogenic. The compound of adaptogen is able to increase energy, more concentration, sex ability, and also has the characteristic to normalize body activity (Gunawan,2000).

Korean ginseng has been famous for the effectiveness but very expensive. The high price of Korean ginseng in Indonesia has caused Indonesian are looking for other alternative by using Java ginseng. In Indonesia, there are many vegetables and herbs that have been wide by used as traditional medicine plants since ancient times. Syamsuhidayat dan. Hutapea (1991). described 145 kinds of traditional medicine plants based on their pharmacological, clinical, nutritive, and economic value. Among them is the Ginseng Java (*Talinum paniculatum* Gaertn) which belong to *Porticulace* family.

The form of Java Ginseng is the same with the Korean Ginseng. According to Sugiastuti *et. al.* (1996) in Ismatika (1999), Java Ginseng has active compounds such as steroid, saponin, and tannin. At least two similar active compounds with Korean Ginseng have been found, which is terpenoid and steroid. There are many kinds of ginseng which grow in: Korea and China are known as *Panax Japonica* from Japan, and Java Ginseng (Som Java) from Indonesia. Ginseng is not synthetic medicine is unharmed but effective traditional natural herb. The part use of the medicine is the root which has the warm characteristic, sweet, and bitter taste (Ried, 1995).

The early research show ginseng can cure fatigues after working hard, beside that ginseng has the power as stimulant tonic, be freshener even for men's spirit. According to government (1999), Korean Ginseng contains of 50 active compounds which have been investigated among other ginseonida, N-nonacosana, neolovene, panaxic acid, and panaxin. Ginteonida is active ginseng compound which have many benefit.

The purpose of this study is to compare of the contains between extract Java Ginseng (*Talinum paniculatum* Gaertn) and extract Korean Ginseng (*Panax ginseng*) (Figure 1).



Java Ginseng



Panax Ginseng

Figure 1. The leave of Java Ginseng and root of Panax ginseng

## Materials and Methods

### Alkaloid test

3 ml ethanol extract Java Ginseng and Korean Ginseng, both of ethanol extract added with 3 ml HCl 2 M, heated for five minutes. After cool then it were added NaCl. Filtrat were treated with Meyer, Dragendorf, and Wagner test.

### Saponin test

1 ml extract Java Ginseng and Korean Ginseng, both of them added aquadest heated about five minutes, then shake.

### Flavonoide test

Both of ethanol extract + 0,5 ml HCl heated on water bath about fifteen minutes.

### Tannin test

Both of ethanol extract + 5 ml aquades + FeCl<sub>3</sub>

### Terpenoide test or steroid

Evaporated of 2 ml ethanol extract + ether. Filtrat were treated with Lieberman Burhard

## Results

Tabel 1. The result of Phytochemistry of Java Ginseng and Korean Ginseng:

	Active Compounds	Java Ginseng	Korean Ginseng
1	Alkaloid		
	- Dragendorff	+	+
	- Mayer	+	+
	- Wagner	+	+
2	Saponin	+	+
3	Flavonoide	-	+
4	Tannin	+	+
5	Terpenoide	-	+

+ = there is secondary metabolite

- = there is no secondary metabolite

Tabel 2. The result of Phytochemistry of Java Ginseng and Korean Ginseng:

	Java Ginseng		Korean Ginseng	
	Result	Observation	Result	Observation
Saponin	+	stable foam	+	stable foam
Flavonoide	-	yellow coloured	+	red coloured
Alkaloid				
- Dragendorff	+	orange precipitated	+	orange precipitated
- Mayer	+	white precipitated	+	white precipitated
- Wagner	+	chocolate precipitated	+	chocolate precipitated
Tannin	+	precipitated	+	chocolate precipitated
Terpenoide	-	yellow coloured	+	red coloured

## Conclusions

Result shows that Java Ginseng contains tannin, alkaloid, and saponin; while Korean Ginseng contains tannin, alkaloid, saponin, terpenoide, and flavonoide (Table 1 & 2).

Except for terpenoide and flavonoide, results of this study from other metabolites confirm that Java Ginseng is readily available in Indonesia. And for further studies, need to be carried out to evaluate extraction of active compounds, definition of structure and potential for synergism or antagonism within the compounds and or other drugs. And also capsule formation of the active compounds for medicinal purposes.

## References

- Gunawan D., 2000, *Ramuan Tradisional untuk Keharmonisan Suami Istri*, Jakarta : Penebar Swadaya.
- Tenney D., 1996, *Ginseng* Woodland Publishing.
- Ried, D 1995, *Chinese Herbaling Herbs*, Pustaka Karya, Jakarta
- Sugiastuti and Ismatika, 1999, Pengaruh frekuensi pemberian air dan dosis pemupukan kalium terhadap pertumbuhan dan produksi Som Java (*Talinum paniculatum* Gaertn). Skripsi Jurusan Budidaya Pertanian, Faperta. Institut Pertanian Bogor, Bogor
- Syamsuhidayat, S. S., J.R. Hutapea. 1991. *Inventaris Tanaman Obat Indonesia I*. Badan Penelitian dan Pengembangan Kesehatan, DepKes RI, Jakarta