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Day 1 April 12, 2018

08:00-09:00 Registrations

Meeting Place 5

conferenceseries.com 09:00-09:30 **Opening Ceremony**

09:30-09:35 **Introduction**

Keynote Forum

09:35-10:15 **Title: The impact of diet on the human microbiome and the brain**
R te biesebeke, HNM Foundation, Switzerland

10:15-10:55 **Title: Resolution of infantile intestinale pseudo-obstruction in a boy**
Gertrud Angsten, Uppsala University, Sweden

Group Photo 10:55-11:00

Networking and Refreshments Break 11:00-11:15 @ Pre-function Area

Sessions: Nutrition & Health | Food and Nutrition | Innovative Information in Nutrition | Pediatric Nutrition | Nutritional Deficiencies | Nutrition in Cancer Treatment

Session Chair: France M Rioux, University of Ottawa, Canada
Session Co-Chair: Iaroslava A Semenova, Nestlé Research Center, Switzerland

Session Introduction

11:15-11:40 **Title: Potential nutrition support for Sarcopenia**
Carina Kern, The Nature's Bounty Co, USA

11:40-12:05 **Title: Food sources of energy, fats, sugars, fibers, vitamin C and sodium among Russian school-aged children**
Iaroslava A Semenova, Nestlé Research Center, Switzerland

12:05-12:30 **Title: Impact of maternal iron deficiency on serum cortisol in the guinea pig offspring**
France M Rioux, University of Ottawa, Canada

12:30-12:55 **Title: Diet quantity not quality, age and BMI are the most prolific predictors of skeletal muscle structural and functional characteristics in middle-age and older persons**
Onambele-Pearson G L, Manchester Metropolitan University, UK

Lunch Break 12:55-13:40 @ The Gallery

13:40-14:05 **Title: Parents' perceptions of the effect of food advertising on children's food choices and weight status**
Lubna A G Mahmood, Hamad Medical Corporation, Qatar

14:05-14:30 **Title: Influence of sago in improving a weight gain of rats and the health profile of the small intestine of rats infected by enteropathogenic Escherichia coli (O127:H6)**
Sarah M Warouw, Sam Ratulangi University, Indonesia

14:30-14:55 **Title: The efficacy and tolerability of high polyunsaturated fatty acid ketogenic diet in one pediatric patient with refractory myoclonic status epilepticus: A case study**
Subhasree Ray, SNDT Women's University, India

14:55-15:20 **Title: Analysis of breakfast habits of children aged between 10-15 years in a selected private International schools in Colombo, Sri Lanka and corrective recommendations**
Dilum R Weliwita, University of Kelaniya, Sri Lanka

Networking & Refreshments Break 15:20 -15:35 @ Pre-function Area

15:35-16:00 **Title: The content of antioxidants – phenolic compounds, in red wines of Georgia "Kindzmarauli" and "Saperavi"**
G Maisuradze, Ivane Javakhishvili Tbilisi State University, Georgia

Special Session

16:00-16:55 **Title: Mobile applications for diet in Saudi Arabia: Use of mobile apps to increase the knowledge and awareness of populations about nutrition**
B Alkhudairi, King Faisal Specialist Hospital & Research Centre, KSA
N Alhazmi, King Faisal General Hospital, KSA

Panel Discussion

Day 2 April 13, 2018

Meeting Place 5

Keynote Forum

09:15-09:55	**Title: Effects of what we eat on our health; what can be said about it, and by whom?** **Loek Pijls,** Loekintofood, Belgium

Workshop

09:55-10:25	**Title: Nutrition, microbiome, cognition & health** **R te Biesebeke,** HNM Foundation, Switzerland
10:25-11:10	**Title: Development of the host immune system regulated by GI-Tract microbiome from birth onwards** **Ger Rijkers,** Roosevelt Academy, Netherlands

Networking & Refreshments Break 11:10-11:25 @ Pre-function Area

11:25-12:10	**Title: Health claim guidance to secure sound story telling** **Loek Pijls,** Loekintofood, Belgium
12:10-12:40	**Title: Engineering the microbiome for health** **R te Biesebeke,** HNM Foundation, Switzerland

Panel Discussion 12:40-12:55

Lunch Break 12:55-13:40 @ The Gallery

Sessions: Nutrition and Food Safety | Innovative information in Nutrition | Childhood Obesity and Weight-Loss Nutrition |Plant nutrition and Nutraceuticals | Women and Maternal Nutrition-Dietary Plans | Clinical Nutrition

Session Chair: Onambele-Pearson G L, Manchester Metropolitan University, UK

Session Co-Chair: Carina Kern, The Nature's Bounty Co, USA

Session Introduction

13:40-14:05	**Title: Effect of *Aspergillus niger* fermented rice bran on quality of pig product to ensure food security** **Selvie D Anis,** Sam Ratulangi University, Indonesia
14:05-14:30	**Title: Epidemiological determinants of folate deficiency among pregnant women of district Dehradun** **Vartika Saxena,** All India Institute of Medical Sciences, India
14:30-14:55	**Title: The utilization of manure degraded by *Hermetia illucense* l (*Diptera: Statiomyidea*) in diet on blood lipid profile of native chicken** **Marie Najoan,** Sam Ratulangi University, Indonesia
14:55-15:20	**Title: The effect of flavonoid papaya seed (*Carica papaya L*) in the organic feed on egg quality and egg shell of local chicken's hens** **Jein R Leke,** Sam Ratulangi University, Indonesia

Networking & Refreshments Break 15:20-15:35 @ Pre-function Area

Panel Discussion

Poster Presentations @ 15:35-17:00

Poster Judge: Lilian de Jonge, George Mason University, USA

NH 001	**Title: Polymethoxyflavones prevent Benzo[a]pyrene/dextran sodium sulfate-induced colorectal carcinogenesis through modulating xenobiotic metabolism and ameliorate autophagic defect in ICR mice** **Min-Hsiung Pan,** National Taiwan University, Taiwan
NH 002	**Title: Cordycepin induced unfolded protein response-dependent cell death with drug resistance phenomenon in MA-10 mouse testicular cancer cells** **Bu-Miin Huang,** National Cheng Kung University, Taiwan
NH 003	**Title: The apple polyphenol phloretin inhibits breast cancer cell migration and proliferation via inhibition of signals by type 2 glucose transporter** **Yuan-Soon Ho,** Taipei Medical University, Taiwan
NH 004	**Title: Diet adjustment in later life: A grounded theory study of eating behaviours amongst the ageing population of Limerick** **Sharon O Flaherty,** Limerick Institute of Technology (LIT), Ireland
NH 005	**Title: Improvement of cardio-metabolic after 8 weeks of weight loss intervention** **B Bajer,** Biomedical Research Center Slovak Academy of Sciences , Slovakia

NH 006	**Title: Nutrition literacy: A mediator of healthy-eating behavior based on the social ecological framework** **Li-Ling Liao,** I-Shou University, Taiwan
NH 007	**Title: Influence of gluten free diet on rat liver cytochromes P450** **Jiří Prokop,** Palacký University, Czech Republic
NH 008	**Title: Integration of duck – paddy farming for supporting food consumption in Minahasa Regency** **Artise H S Salendu,** Sam Ratulangi University, Indonesia
NH 009	**Title: Slimming teas, are they therapeutic or noxious?** **Yunus Emre Bakirhan,** Marmara University, Turkey
NH 010	**Title: Attitudes of pharmacy and nutrition students towards team-based care after first exposure to interprofessional education in Qatar** **Al Abdi T,** Qatar University, Qatar
NH 011	**Title: High dietary diversity is associated with child obesity in Iranian school children: An evaluation of dietary diversity score** **Hooshmand Sahar,** SNDT Woman's University, India

Day 3 April 14, 2018

Meeting Place 5

Keynote Forum

10:00-10:40	**Title: Metabolic effects of overfeeding and the role of protein in protection of weight gain** **Lilian de Jonge,** George Mason University, USA

Sessions: Parenteral Nutrition | Sports Nutrition | Nutrigenetics and Nutrigenomics | Diabetic Nutrition and Meal Plans | Anaemia and Nutritional Illness | Animal and Livestock Nutrition

Session Chair: Lilian de Jonge, George Mason University, USA

Session Introduction

10:40-11:05	**Title: Deal with obesity prescription: Body, mind and right food** **Sandra Gordilho,** Clinica Elementhare, Brazil

Networking & Refreshments Break 11:05-11:20 @ Pre-function Area

11:20-11:45	**Title: Breakfast habits of Sri Lankan urban educated working women in the age group 28-32** **Dilum R Weliwita,** University of Kelaniya, Sri Lanka
11:45-12:10	**Title: The quality changes in different food fatty acids during storage assessed with the NMR technique** **Stolecka-Warzecha A,** Medical University of Silesia, Poland
12:10-12:35	**Title: Anti-inflammation and colorectal cancer cell inhibition effects of enzyme treated pectin** **Ying-Che Huang,** National Pingyung Univerity of Science and Technology, Taiwan
12:35-13:00	**Title: The benefits of the use of dried tomato meal (*Solanum lycopen L*) in village local chicken and it's potencial development** **Fietje Sophie G Oley,** Sam Ratulangi University, Indonesia

Lunch Break 13:00-13:45 @ The Gallery

13:45-14:10	**Title: The effect of fish meal substitution with chicken viscera in pig ration on blood and meat cholesterol, LDL and HDL** **Lidya Siulce Kalangi,** Sam Ratulangi University, Indonesia
14:10-14:35	**Title: Food consumption of livestock products by household coast in South Bolaang Mongondow regency** **Femi H Elly,** Sam Ratulangi University, Indonesia
14:35-15:00	**Title: Analysis of local poultry food consumption in regency of North Bolaang Mongondow** **Ingriet D R Lumenta,** Sam Ratulangi University, Indonesia
15:00-15:25	**Title: Nutritional status and possible preventable factors affecting this status in fifth-graders in Bjelovar-Bilogora County** **Zrinka Puharić,** Bjelovar University of Applied Sciences , Croatia

Networking & Refreshments Break 15:25-15:40 @ Pre-function Area

Award & Closing Ceremony

The effect of flavonoid papaya seed (*Carica papaya L*) in the organic feed on egg quality and egg shell of local chicken's hens

Jein R Leke, Jet S Mandey, Friets Ratulangi, Godlief D Rembet and **Chistina S Junus**
Sam Ratulangi University, Indonesia

The purpose of this research was to analyze the effect of flavonoid papaya seed (*Carica papaya L*) in the organic feed on egg quality and egg shell of local chicken's hens. This study used 100 local chicken's hens. The research used experimental methods. The experimental design used in this study was completely randomized design (CRD) with 5 treatments and 5 replications. The treatments in this study consisted of P0: based diet (BD) +0% organic feed with papaya seed (OFPS), P1: Based diet (BD) 99.5%+0.5% (OFPS), P2: BD 99%+1% (OFPS), P3: BD 98%+2% (OFPS), P4: BD 97.5+2.5% (OFPS). The variables measured were egg weight (g/egg), egg albumen weight (g/egg), egg yolk, egg yolk weight (g/egg), egg shell thickness (mm), egg protein (%), egg fat (%), egg cholesterol (mg/100g), egg shell calcium (%) and egg shell phosphor (%) contens of local chicken's hens. The data was analyzed by analysis of variance (ANOVA), when there was a significant effect, further tested by Least Significant Difference (LCD). Based on the research, it can be concluded the effect of flavonoid papaya seeds in the organic feed on egg quality and egg shell of local chickens hens as much as 0.5–2.5 percent have significant effect ($P<0.01$) on the egg weight, egg albumen, egg yolk, egg yolk weight, egg shell weight, egg shell thickness, egg protein, egg fat, egg cholesterol, egg shell calcium, egg shell phosphor content of local chickens hens. It can be that the use of OFPS in diet up to 2.5% could improve egg quality and egg shell of local chicken's hens.

Keywords: egg quality, egg shell, papaya seeds

1.Introduction

Indonesia has high biodiversity in genetic resources, especially in the native chicken genetic resources (Sulandari *et al.*, 2008). Local chickens in Indonesia are classified as a nonchicken breed *(bukan ras/buras)* to differentiate them from commercial modified genetic chickens such as Cobb Ross, Hubbard (FAO,2008). Some local breeders have started applying breeding and selection programs on local chickens to meet the high consumer demand for local chicken products. The introgression of some commercial lines (Sulandri *et al.*, 2008, Jakaria *et al.*, 2012;Ulfah *et al.,* 2012) and exotic chickens (Sulandari., *et al.*, 2008) might be found in Indonesian chicken gene pools since some commercial and exotic chicken breeds were intensively imported from other countries during recent years. Iskandar (2011) stated that in the 1970s, most native chickens were reared by the traditional system (80%). Since 1980s, native chicken farms have been increasing

tremendously. The farmers are rearing their native chickens with traditional management systems and implementing other rearing systems (semi intensive and intensive systems).

The highest egg producer of local Indonesian chickens and Arab chickens might have been introduced from western Asia (Riztyan *et al.*, $2011_{a,b}$), mainly from Saudi Arabia. The egg yolk contains many essential nutrients, including protein, lipid, vitamins and minerals, whereas egg whites (EW) principally contain protein, water, and almost no fat (WHO, 985). Extensive research has been conducted on egg yolks, specifically on the health benefits of egg yolk phospholipids. Egg white is a good source of protein, as evidenced by their amino acids score of 100 and high rate of net protein utilization (NPU) (WHO,1985; Sheffner *et al.*, 1956).

Carica papaya is one of many fruits grow in tropical areas such as Indonesia. Indonesian people consume these fruits because they are easily found and available all the seasons. After consumption of the fruits, the papaya seeds are thrown away and regarded as waste products. Based on Horticulture General Directorate, Agricultural Ministry, papaya production was 6.862.558 tons in 2014. Fruit and leave parts of papaya are used for stimulating the digestive system and as an antioxidant source. These parts can act as antioxidant, antifungal and antibacterial. The papaya seeds contain chemical components such as flavonoids, tocophenol, terpenoids, alcohols, carpain and papain enzymes, chimoprotein enzyme and lysozyme.(Maisarah *et al.*, 2014; Sandhiutami *et al.*, 2016; Nakumura et al., 2007).

Chinoy *et al.*, (1997) reported that oleic, palmitic, stearic and linoleic acids are fatty acids present in papaya/pawpaw seeds. The fleshy part of papaya (mesocarp) fruits has active ingredients that have potential benefits as antioxidant, antimicrobial, anti-inflammatory, antiulcer, antidiabetic antihypertensive and antihyperlipidemic (Nor *et al.*, 2008). Adesuyi et al., (2011) suggest that papaya seeds are one of the agro-industrial wastes given to chickens because they contain nutrients such as protein, fat and ash. Maisarah et al., (2014) found that papaya seeds contain ascorbic acid 14.4 mg/100gram, betacarotene 120 μg/100 g,vitamin E 4.09 mg/100g.

The search for cheap sources of feedstuffs has shown pawpaw seeds to have the potential to be evaluated and fully exploited as ingredients in animal feed. This study, therefore, aims to assess the effect of flavonoid papaya seed (*Carica papaya* L.) in the organic feed on egg quality and eggshell of local hens.

2. Materials and Methods

2.1. Preparation of Samples

Fruits of papaya were washed and intersected to collect the papaya seeds. These seeds were dried in the sun for about 3-5 days. After drying, the seeds were milled to be starchy papaya and to be mixed with chicken feed. The Laboratory Analysis results of Science and Technology Feed IPB Bogor in 2018 showed that the dry papaya seed material was 90.05 %; ash 8.96 %; 23.41 crude protein; 30. 48 % crude fiber; 27.18 % fat, BETA-N 0.02 %; 1.30 % Ca; 0.60 % phosphor; and 2962.4 Kcal.kg EM. The dietary treatments were formulated using similar feed with 51 % yellow corn, 14 % rice bran, 7 % fish meal, 3 % fish oil, 3 % soybean meal and 22 % commercial diet. Organic feed with papaya seed (OFPS) i.e. P0: 100% basal diet (BD) + 0 % organic feed with papaya seed (OFPS); P1: BD 99 % + 1 % OFPS; P2: BD 98 % + 2 % OFPS, P3: BD 97.5 % + 2.5 % OFPS; and P4: BD 97 + 3 % OFPS.

Hens, Diets and Experimental Design

Feeding trial was conducted at a local chicken farm in Kanaan Village, Central Manado, North Sulawesi Utara, Indonesia. The observation of egg quality was carried out at the Laboratory of Production, Faculty of Animal Science, University of Sam Ratulangi, Manado – Indonesia.

The research was subjected to a one-way completely randomized design (CRD) with 100 native hens as experiment objects. The hens were divided into five experimental diets and each was divided into four replicate groups of five hens per replication using completely randomized design. In total, there were 20 unit experiments.

The dietary treatments were formulated using similar feed materials i.e. 1 % , 2%; 2,5% and 3% of papaya seeds (Table.1.). Feed was provided ad libitum, and drinking water was always available. Feed consumption, egg weight and production were recorded daily for eight weeks. Two eggs from replication were taken on the last day of the observation period for external and internal quality assessment. Crude protein (AOAC, 2005) was analyzed by HPLC-ninhydrin, HPLC –o-phthalaldehyde, and HPLC-dansyl techniques after derivation with TFA-butanol, and by formol titration. Method, based on HPLC- ninhydrin techniques, has a significant correlation (r=0-9992) with its amino acids content and N-total content. The protein as amino acids-N-total conversion factor obtained was 6.95 for N-total content less than 15.5%, and 8.59 for N-total content higher than 15.5% (Sumarsono *et al.*, 2002). The fat was analyzed by Sohxlet method. The cholesterol content was measured using standard method of AOAC (1980). Eggshells (calcium and phosphor) were analyzed by AAS.

The study was conducted over a period of 8 weeks.Data was collected on egg weight, eggshell weight, eggshell thickness, egg yolk weight, egg albumen weight. Egg weight, eggshell weight, and eggshell thickness were determined for eggs collected during the last 3 days of each period. Eggshell weight and yolk and albumin weight calculated by formula :

1. Eggshell weight (g/egg) is measured by breaking down the eggs; then, eggshell separated from albumen and yolk. Eggshell is cleaned from the rest of the albumen and then weighed (An, *et al.* 2010)
2. Yolk weight (g/egg) is measured by separate yolk from albumen then weighed (An, *et al.,* 2010)
3. Albumen weight (g/egg) is calculated by egg weight minus by eggshell weight and yolk weight (An et al., 2010)

Statistical analysis

Data was subjected to one-way analysis of variance and continued to Duncan's multiple range test. All data was expressed in the form of the standard error of mean. The IBM SPSS 22 was used for statistical processing of data.

Table 1. Composition and Nutrient of the Diets

	P0	P1	P2	P3	P4
Ingredients (%)					
Based Diet	100	99	98	97.5	97
Papaya seed	0	1	2	2.5	3
Total	100	100	100	100	100
Calculated composition					
Protein (%)	16.26	16.29	16.33	16.40	16.43
Fat (%)	6.79	6.89	6.99	7.19	7.29
Crude Fiber (%)	4.86	4.89	4.98	5.37	5.50
Ca(%)	0.69	0.69	0.69	0.70	0.70
P(%)	0.76	0.75	07.5	0.75	0.75
ME(Kcal/kg)	2962.97	2962.96	2962.96	2962.75	2962.95

Note : P0 : 100 % based Diet (BD) + 0 % organic feed with papaya seed (OFPS); P1 : 99.5 % BD + 0.5 % OFPS; 99 % BD+ 1 % OFPS; P3 : BD 98 % + 2 % OFPS; P4 : 97.5% BD + 2.5 % OFPS

3. Results and Discussion

Data on the effect of flavonoid papaya seed (*Carica papaya*) in the organic feed on egg quality and eggshell of local hens is showed in Table 2. The results showed that egg quality and eggshell were significantly ($P < 0,01$) affected by dietary treatments. Egg protein, egg fat, egg cholesterol, eggshell calcium, and eggshell phosphor were significantly ($P < 0.01$) affected by dietary treatments.

Papaya seed flour influences egg protein, egg fat, egg cholesterol, eggshell calcium and eggshell because papaya seeds contain ascorbic acid and beta-carotene. Papaya seed flour can increase egg production by suppressing the number of worm populations in the digestive system of chicken (Heterakis gallinarum, ascaridia galli and trihostrongylus tenuis) (Ameen et al,No 9); Nideuow et al (25), Ngahunguyi (26). Mairasah et al, (2014) reported that papaya seeds contain

vitamin C that serves as an antioxidant and Vitamin E which serves as an antidote to free radicals in peroxidation and protection of polyunsaturated fatty acids (PUFA) and also as agents against LDL (Hardan 2007, Monge , Rojana (2011), Vivek and suhendra (2006).

Table 2. Egg quality and Egg Shell of Local Hens

Variables	Dried papaya fruit seeds					P Value
	0 % OFPS	0.5 % OFPS	1 % OFPS	% OFPS	2,5 OFPS	
Egg Quality						
Egg protein (%)	11.80±0.26[a]	11.98 ± 0.46[a]	12.13±0.49[b]	12.23± 0.32[b]	12.33 ± 0.64[b]	.654
Egg fat (%)	19.00 ±0.72[a]	18.00± 0.36[b]	17.96±0.56[c]	17.40± 0.10[c]	17.46± 0.55[c]	.020
Egg Cholesterol (mg/100g)	240.39±0.17[a]	255.70± 0.18[b]	236.65± 27.31[c]	224.22±14.11[c]	247.04± 4.44[a]	.333
Egg shell						
Egg shell Calcium (%)	30.21±0.16[a]	28.89 ± 0.82[a]	30.81±0.53[ab]	34.64± 1.94[bc]	32.89 ± 2.34[c]	.001
Egg shell Phosphor (%)	0.43±0.16[a]	0.42 ± 0.16[a]	0.44±0.01[a]	0.53±0.06[b]	0.49 ± 0.01[ab]	.093

Note: [abcd] means with the letters on the row are significant difference (P <0.01)

A previous study the protein levels of protein levels in fresh hens' egg from village. The population was derived from chicken *Gallus domesticus* egg farmers from RT 2/RW1, Ngenep Village, Karang Ploso, Subdistrict of Malang, East Java. The modified Kjedhal method was applied to obtain protein levels at 0 days 12.37 %; 13.09 % 5 days;10 days 13.74 %;14.24 % 15 days; and 15.83 % 20 days. The findings of the study showed that the length of egg storage affected the protein content of *Gallus domesticus* eggs.

Another research determined the egg protein levels of different types of poultry. The study focused on rooster chicken eggs, local chicken eggs, duck eggs, and quail eggs. The protein content of the fowl's eggs was evaluated by Kjeldahl method to calculate total nitrogen content and

converted (conversion factor is 6.25). Results of the research reported the protein content of the fowls i.e. rooster chicken eggs 6.45 % ± 0.14; local chicken eggs 6.9 % ± 0.04; duck eggs 6.59 % ± 0.04; and quail eggs 6.55 % ± 0.01. Dwi *et al.* (2016) reported that the local hen eggs had the highest while rooster chicken eggs had the lowest protein level.

A different research reported that the effect of graded levels of dried pawpaw seeds had non-significant effect on feed intake and weight gain across the dietary treatment with diet containing 5 % DPS having the highest weight gain of 17.58 g/bird/day, while birds fed diets with 15 % DPS had the lowest weight gain (11.18 g/bird/day), nutrient utilization was higher in birds fed 5 % DPS. However, there were significant differences ($P < 0.05$) in the hematological parameters, serum biochemistry and carcass parameters across the dietary treatment. The results of this study indicated that DPS can be included in broiler diet at 5 % level.

The effect of dietary calcium sources and restricted feeding on the physical quality of eggshell was determined in Arabian chickens. The results showed that treatments of calcium sources and restricted feeding did not have a significant ($P > 0.05$) effect on all parameters. Average egg shell calcium 44.71 – 46.41 % and phosphorus egg shell 0.86 % (Eli *et al.*, 2012).

4. Conclusion

Papaya seed flour is an antioxidant and an antidote to free radicals that can help with digestive system by reducing the presence of worms in the feces of chickens to improve the quality of local chicken eggs. Papaya seed flour up to 2.5 percent can increase egg protein, egg fat, egg cholesterol, eggshell calcium and eggshell phosphor content of local chickens hens.

5. References

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