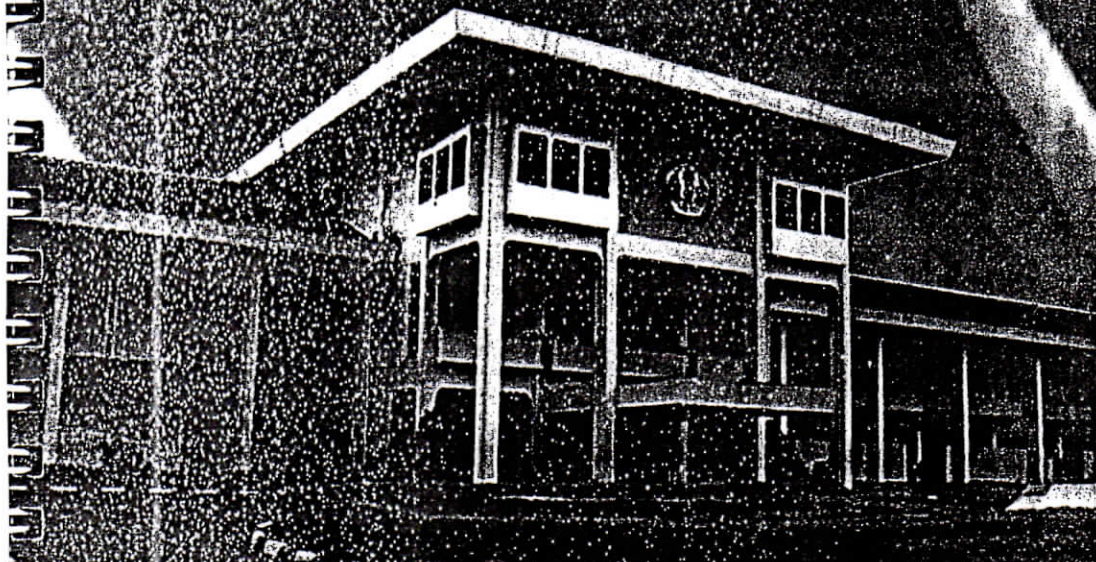




Universitas Padjadjaran
Institut Teknologi dan Industri Service Institute
Research and Development Technology

INTERNATIONAL SEMINAR

Biotechnology for Enhancement of the Tropical Biodiversity



SCIENTIFIC ABSTRACT and PROGRAM

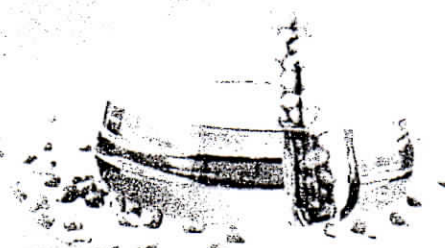
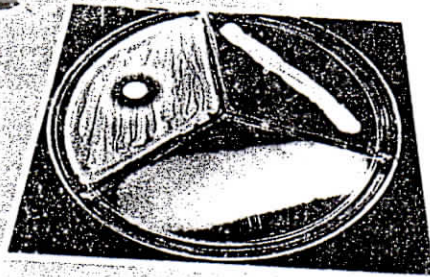
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SCHEDULE FOR POSTER BIOTECHNOLOGY SEMINAR

DAY: OCTOBER 19th 2010

NO	NAME	TITLE
1	AHMAD FATHONI	Biooxidation of Berberine by the Endophytic Fungus Coelomycetes AFKR-1 Isolated from Kayu Kuning [<i>Archangelisiaflava</i> (L.) Merr.: Menispermaceae] Andria Agusta*, Yuliasrijamal, Praptiwi and <u>Ahmad Fathoni</u>
2	ANDRY PRATAMA	The Effect Of Early Feed Restriction On The Compensatory Growth In Broiler Chickens <u>Andry Pratama</u> , Ruhyat Kartasudjana, Tuti Widjastuti
3	BUDI IRAWAN	Hybrid Study Of <i>Stachytarpheta</i> Spp. (Verbenaceae) Based On Morphological Characters In JatinangorSubdistrict, Sumedang Regency, West Java <u>Budi Irawan</u> and NariaAdelinaRospitasari
4	DIAN AKBARINI	The Diversity Plants Produced of Agarwood in Kabupaten Bangka Tengah

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		<u>Dian Akbarini</u>
5	EVIE RATNASARI	The Potency Of Macroalgae Diversity In South Beach On Madura Island <u>Evie Ratnasari</u> Wisanti Novita Kartika Indah
6	HERSANTI	Antagonistic Potency of Bacteria Isolated from Local Microorganism of Maja in Againts On Damping Off Disease(<i>Rhizoctoniasolani</i> Kuhn.) and growth of paddy <u>Hersanti</u>
7	IETJE WIENTARSIH	The Influence of Avocado Leaves Ethanol Extract (<i>Persea americana</i> Mill) on Ureum and Creatinine Description of Male White Rats Induced by Ethylene Glycol. <u>Ietje Wientarsih</u> ¹ , Akhmad Fuadi ¹ , Rini Madyastuti ² , Bayu Febram Prasetyo ²
8	MIA MIRANTI	The present of Inclusion Bodies of <i>Helicoverpaarmigera</i> Nuclear Polyhedrosis Virus (<i>HaNPV</i>) in the Midgut Tissue of Fourth Instars <i>Spodopteralitura</i> Larvae

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**THE INFLUENCE OF AVOCADO LEAVES ETHANOL
EXTRACT (*Persea americana* MILL) ON UREUM AND
CREATININE DESCRIPTION OF MALE WHITE RATS
INDUCED BY ETHYLENE GLYCOL.**

**IETJE WIENTARSIH¹, AKHMAD FUADI¹, RINI
MADYASTUTI², BAYU FEBRAM PRASETYO²**

ABSTRACT

The objective of this study was to determine the influence of ethanol extract of avocado leaves on ureum and creatinine description induced by ethylene glycol. Twenty adult male white rats were divided into four treatment groups. The normal control group (K1) was given aquadest, the negative group (K2) was induced without treatment, the treatment group (K3, K4) were induced and given ethanol extract of avocado leaves dose 100 mg/kgBW and 300 mg/kgBW. Rat blood serum was taken before and after treatment (0 and 11th days). The results showed that the ureum concentration were no significant differences between each treatment group. On the otherhand there were significant differences on creatinine concentration between groups induction with ethylene glycol (K2) and treatment with ethanol extract of avocado leaves (K3, K4). The results of research could be concluded that ethanol extract of avocado leaves could decrease the blood ureum and creatinine concentration.

The Influence of Avocado Leaves Ethanol Extract (*Persea americana* Mill) on Ureum and Creatinine Description of Male White Rats Induced by Ethylene Glycol

Ietje Wientarsih⁽¹⁾, Bayu Febram P⁽²⁾, Rini Madyastuti P.⁽²⁾, Akhmad Fuadi⁽³⁾

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Background

The use of herbal medicines such as *Persea americana* (Avocado or alligator pear) has recently gained popularity in Indonesia. Avocado has many medicinal in traditional uses, the leaves as a remedy for pyorrhea, hypertensive, haemorrhage, allegedly stimulates and regulates menstruation, urolithiasis (Adeyemi et al. 2002). Nevertheless the exact mechanism of the preventive effects of avocado leaves is still far to be clearly established, being its knowledge necessary to successfully apply these therapies to avoid stone formation. Kidney stone formation or urolithiasis is a complex process that is a consequence of an imbalance between promoters and inhibitors in the kidneys. The recurrence of urolithiasis represents a serious problem as patients who have formed one stone are more likely to form another. Not all standard pharmaceutical drugs used to prevent urolithiasis are effective in all patients, and many have adverse effects that compromise their long-term use (Touhami et al. 2007). This study to further investigate the potential of Avocado Leaves Ethanol Extract as a therapy for lithiasis, the present study examined the effect of Avocado Leaves Ethanol Extract on experimentally ethylene glycol induced calcium oxalate (CaOx) nephrolithiasis in rats.

Methods

The effect of oral Avocado leaves ethanol extract administration on calcium oxalate urolithiasis was studied in male Sprague Dawley rats. Rats were rendered nephrolithic by providing drinking water containing 0.75% ethylene glycol [v/v] (EG) and 2% ammonium chloride [w/v] (AC) for 10 days. In addition to EG/AC treatment, three groups of rats were also gavage-administered solutions containing 100 mg/kg BW (group C), 300 mg/kg BW (group D) Avocado leaves ethanol extract. Positive control rats (group B) were treated with EG/AC but not Avocado leaves ethanol extract. Negative control rats (group A) were provided with normal drinking water, and were administered normal water by gavage. Each group contained 5 rats. After 10 days, serum samples were collected and analyzed for urea and creatinine using *Spectrofotometer Hitachi UV/Vis®*. Results are presented as mean \pm standard error (S.E.). A one-way ANOVA was used to determine the significance of differences among groups. Student's *t*-test was used to

assess differences between means. Conventional Windows software was used for statistical computations. A *P* value < 0.05 was considered to indicate a significant difference.

Result and Discussion

Serum analysis showed that urea and creatinine levels were higher in Groups B, C and D compared to Group A (Figure 1 and 2). These data indicate marked renal damage in the EG/AC-treated rats. The data also showed that urea and creatinine levels were lower in rats treated with Avocado leaves ethanol extract (Groups C and D) compared to rats treated with EG/AC alone (Group B, positive control).

Tabel 1. Average urea level before and after treatment

Kelompok	Sebelum (mg/dl)	Sesudah (mg/dl)
A	29.985 ± 12.534	26.316 ± 11.595
B	25.263 ± 9.874	32.762 ± 6.375
C	21.854 ± 3.783	26.476 ± 11.960
D	24.942 ± 13.255	28.190 ± 6.374

*No difference significantly (*P* > 0.05)

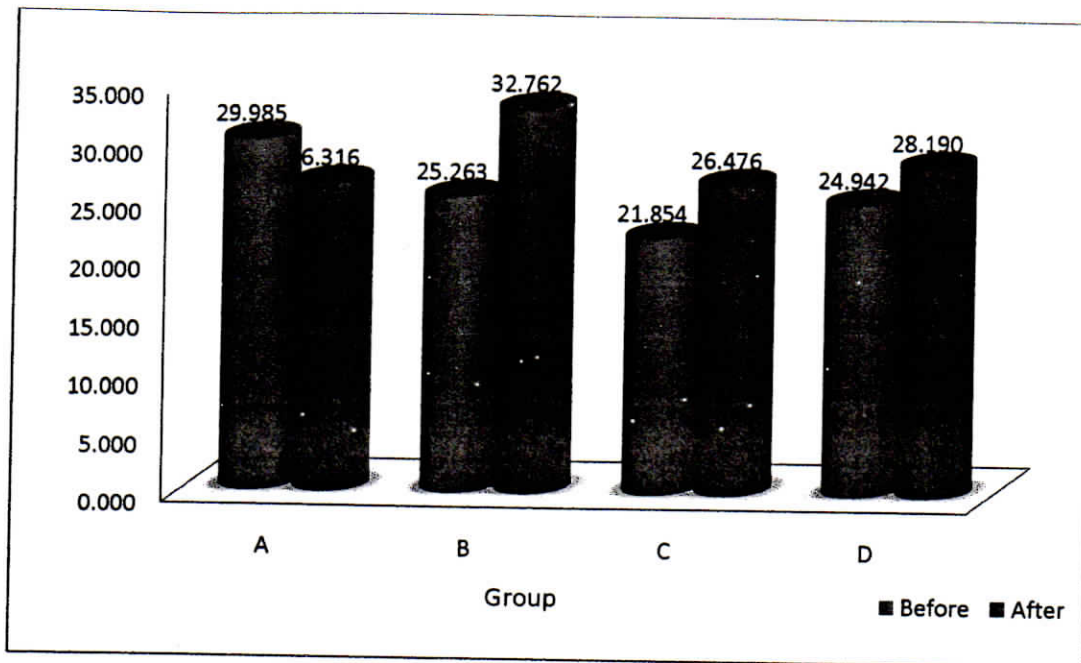


Figure 1. Average ureum concentration after and before treatment.

Tabel 2. Average creatinine level before and after treatment

Kelompok	Before (mg/dl)	After (mg/dl)
A	0.983 ± 0.100	1.014 ± 0.059 ^b
B	0.851 ± 0.037	1.175 ± 0.093 ^c
C	0.931 ± 0.059	0.819 ± 0.052 ^a
D	0.926 ± 0.052	0.902 ± 0.120 ^{ab}

*Superscript in the same column and row mean difference significantly (P < 0.05)

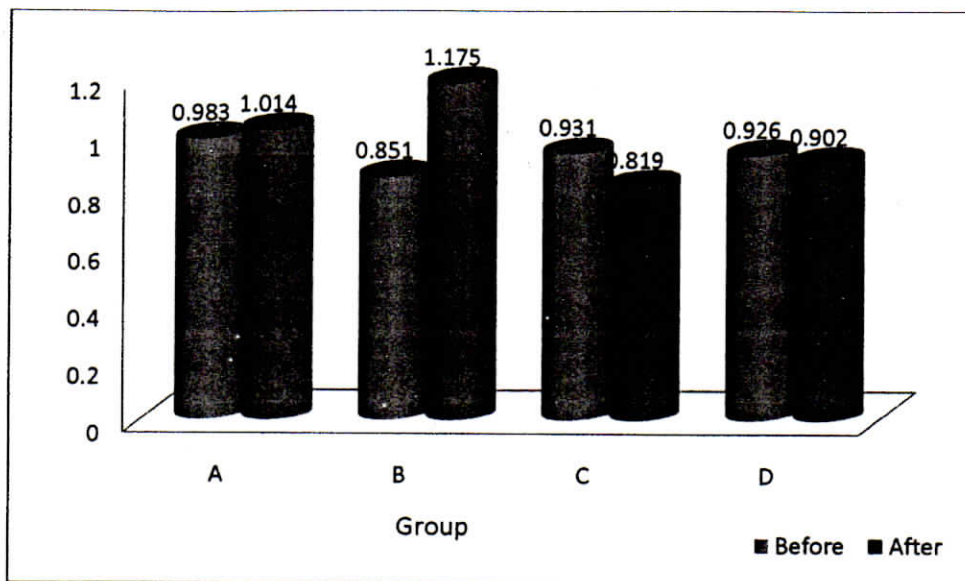


Figure 2. Average creatinine concentration after and before treatment

Avocado leaves has a potassium and flavonoids such as quercetin. Potassium and flavanoid may prevent calcium oxalate crystal deposition in the kidney by preventing hyperoxaluria-induced peroxidative damage to the renal tubular membrane surface (lipid peroxidation), which in turn can prevent calcium oxalate crystal attachment and subsequent development of kidney stones (Touhami et al. 2007).. In urolithiasis, the glomerular filtration rate (GFR) decreases due to stones in the urinary system obstructing urine outflow. This leads to the accumulation of waste products in the blood, particularly nitrogenous substances such as urea, creatinine and uric acid. In addition, increased lipid peroxidation and decreased levels of antioxidant potential have been reported in the kidneys of rats supplemented with a calculi-producing diet. In this context, oxalate has been reported to induce lipid peroxidation and to cause renal tissue damage by reacting with polyunsaturated fatty acids in cell membranes. In the present study, the positive control calculi-induced rats (Group B) were found to have marked renal damage, consistent with the elevated serum levels of creatinine and urea. The administration of avocado leaves inhibited these changes that would otherwise promote new stone formation in the urinary system. In rats treated with avocado leaves, we attribute the lower serum creatinine and urea levels to an enhanced GFR and the antidiuretic property of Avocado leaves extract.

Conclusion

The present study found that the administration of Avocado leaves ethanol extract effectively prevented the development of urolithiasis in rats. These findings support the use of Avocado leaves ethanol extract as an alternative medicine to prevent urolithiasis.

Further research is necessary to clarify the mechanism underlying this preventive effect of Avocado leaves ethanol extract.

References

Adeyemi, et al. 2002. Analgesic and Anti-inflammatory Effects of The Aqueous Extract of Leaves of *Persea americana* Mill (Lauraceae). *Fitoterapia*, 73 (5), 375-377.

Touhami M, et al. 2007. Lemon juice has protective activity in a rat urolithiasis model. *BMC Urology*, 7:18 doi:10.1186/1471-2490-7-18