Judul Artikel: Acute toxicity of papaya leaf extract on Artemia salina leach larvae, Penulis: W H Nugrahaningsih1,*, A Titi2 and N K Dewi1, Nama Seminar/Konferensi/Simposium: 5th International Conference on Mathematics, Science and Education 2018 (5th ICMSE2018), Penyelenggara Seminar/Konferensi/Simposium: UNNES, Waktu Pelaksanaan Seminar/Konferensi/Simposium: 8–9 October 2018, ISBN/ISSN: 17426588, 17426596
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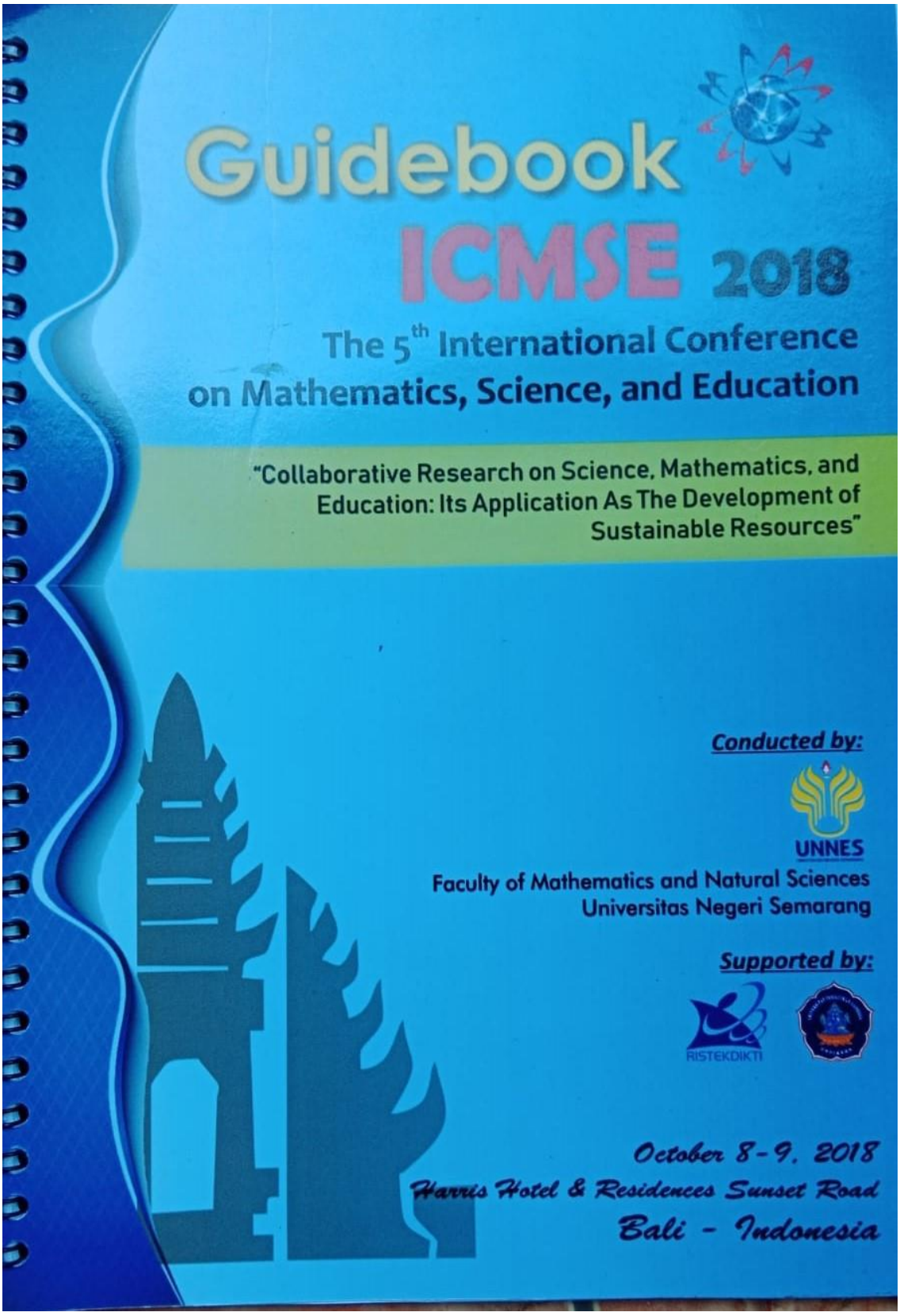
Komentar dari Reviewer : *Penulis 1/3 Sesuai bidang keilmuan Bahasa dan sistematika tulisan baik, IMRADC ada dan jelas, unsur kelengkapan sesuai kaidah ilmiah Informatif mengenai toksisitas akut daun pepaya Terbitan prosiding terindeks Scopus dengan SI 11% dimohon melampirkan cover, daftar isi, bukti korespondensi, ethical approvel, sertifikat pembicara/daftar hadir, tidak dinilai dulu*

Yth Penilai PAK
Jabatan Fungsional

Artikel berjudul Acute toxicity of papaya leaf extract on Artemia salina leach larvae merupakan hasil penelitian untuk menguji ekstrak daun papaya terhadap larva Artemia salina. Larva Artemia salina merupakan jenis udang-udangan yang termasuk dalam invertebrate, dan juga bukan merupakan host/agen dari suatu penyakit sehingga tidak memerlukan ethical approval. Berikut kami lampirkan cover dan daftar isi, bukti korespondensi dan sertifikat presenter.

Cover dan Daftar Isi



Guidebook ICMSE 2018

The 5th International Conference on Mathematics, Science, and Education

"Collaborative Research on Science, Mathematics, and Education: Its Application As The Development of Sustainable Resources"

Organized by:

UNNES

Faculty of Mathematics and Natural Sciences
Universitas Negeri Semarang

Supported by:

RISTEKDIKTI

October 8-9, 2018

Harris Hotel & Residences Sunset Road

Bali - Indonesia

The 5th International Conference on Mathematics, Science, and Education (ICMSE 2018)

Time (WITA)	Event
07.00-08.30	Registration
08.30-09.30	Opening Ceremony & The Address of Rector Universitas Negeri Semarang **Prof. Dr. Fathur Rokhman, M.Hum.**
09.30-10.00	Speech of Minister of Research, Technology and Higher Education of Republic of Indonesia **Prof. H. Mohamad Nasir, Ph.D.**
10.00-10.15	**Coffee Break**
	Plenary Session
10.15-11.45	**Prof. Dominic Reeve, Ph.D.** Coastal Engineering & Chartered Mathematics, Swansea University, United Kingdom **Assoc. Prof. Dr. Zaiton Abdul Majid** Physical Chemistry – Universiti Teknologi Malaysia, Malaysia **Assoc. Prof. Dong Fengming, Ph.D.** Mathematics – National Institute of Education, Nanyang Technological University, Singapore
	Moderator: Cepi Kurniawan, M.Si., Ph.D.
11.45-12.30	**Editorial Information for Publication**
12.30-13.30	**Lunch Break**
13.30-17.20	**Paralel Session**

Parallel Session DAY 1, October 8th 2018													
Rooms	**R-01**	**R-02**	**R-03**	**R-04**	**R-05**	**R-06**	**R-07**	**R-08**	**R-09**	**R-10**	**R-11**	**R-12**	**R-13**
Chairman	**Ch-01**	**Ch-02**	**Ch-03**	**Ch-04**	**Ch-05**	**Ch-06**	**Ch-07**	**Ch-08**	**Ch-09**	**Ch-10**	**Ch-11**	**Ch-12**	**Ch-13**
13.30-13.50	M-01	M-16	M-31	M-46	M-61	SE-01	SE-16	SE-31	P-01	P-16	C-01	B-01	CS-01
13.50-14.05	M-02	M-17	M-32	M-47	M-62	SE-02	SE-17	SE-32	P-02	P-17	C-02	B-02	CS-02
14.05-14.20	M-03	M-18	M-33	M-48	M-63	SE-03	SE-18	SE-33	P-03	P-18	C-03	B-03	CS-03
14.20-14.35	M-04	M-19	M-34	M-49	M-64	SE-04	SE-19	SE-34	P-04	P-19	C-04	B-04	CS-04
14.35-14.50	M-05	M-20	M-35	M-50	M-65	SE-05	SE-20	SE-35	P-05	P-20	C-05	B-05	CS-05
14.50-15.05	M-06	M-21	M-36	M-51	M-66	SE-06	SE-21	SE-36	P-06	P-21	C-06	B-06	CS-06
15.05-15.20	M-07	M-22	M-37	M-52	M-67	SE-07	SE-22	SE-37	P-07	P-22	C-07	B-07	CS-07
15.20-15.35	M-08	M-23	M-38	M-53	M-68	SE-08	SE-23	SE-38	P-08	P-23	C-08	B-08	CS-08
15.35-15.50	M-09	M-24	M-39	M-54	M-69	SE-09	SE-24	SE-39	P-09	P-24	C-09	B-09	CS-09
15.50-16.05	M-10	M-25	M-40	M-55	M-70	SE-10	SE-25	SE-40	P-10	P-25	C-10	B-10	CS-10
16.05-16.20	M-11	M-26	M-41	M-56	M-71	SE-11	SE-26	SE-41	P-11	SE-46	C-11	B-11	M-107
16.20-16.35	M-12	M-27	M-42	M-57	M-72	SE-12	SE-27	SE-42	P-12	SE-47	C-12	B-12	M-108
16.35-16.50	M-13	M-28	M-43	M-58	M-73	SE-13	SE-28	SE-43	P-13	SE-48	C-13	C-16	M-109
16.50-17.05	M-14	M-29	M-44	M-59	M-74	SE-14	SE-29	SE-44	P-14	SE-49	C-14	C-17	M-110
17.05-17.20	M-15	M-30	M-45	M-60	M-75	SE-15	SE-30	SE-45	P-15	SE-50	C-15	C-18	M-111

Parallel Session DAY 2, October 9th 2018				
Rooms	**R-01**	**R-02**	**R-03**	**R-04**
Chairman	**Ch-14**	**Ch-15**	**Ch-16**	**Ch-17**
08.00-08.15	SE-51	SE-67	M-76	M-91
08.15-08.30	SE-52	SE-68	M-77	M-92
08.30-08.45	SE-53	SE-69	M-78	M-93
08.45-09.00	SE-54	SE-70	M-79	M-94
09.00-09.15	SE-55	SE-71	M-80	M-95
09.15-09.30	SE-56	SE-72	M-81	M-96
09.30-09.45	SE-57	SE-73	M-82	M-97
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10.15-10.30	SE-60	SE-76	M-85	M-100
10.30-10.45	SE-61	SE-77	M-86	M-101
10.45-11.00	SE-62	SE-78	M-87	M-102
11.00-11.15	SE-63	SE-79	M-88	M-103
11.15-11.30	SE-64	SE-80	M-89	M-104
11.30-11.45	SE-65		M-90	M-105
11.45-12.00	SE-66		M-112	M-106

Chairman and Co-Chairman

DAY	Code Room	Name
DAY 1	Ch-01 R-01	Chairman *ex officio* Co-Chairman: Adi Nur Cahyono
	Ch-02 R-02	Chairman *ex officio* Co-Chairman: M Kharis
	Ch-03 R-03	Chairman: I Gusti Nyoman Yudi Hartawan
		Co-Chairman: Arief Agoestanto
	Ch-04 R-04	Chairman: Ratih Ayu Apsari
		Co-Chairman: Amidi
	Ch-05 R-05	Chairman *ex officio* Co-Chairman: Ardhi Prabowo
	Ch-06 R-06	Chairman *ex officio* Co-Chairman: Andreas Priyono Budi Prasetyo
	Ch-07 R-07	Chairman: I Wayan Mudianta
		Co-Chairman: Ella Kusumastuti
	Ch-08 R-08	Chairman *ex officio* Co-Chairman: Aji Purwinarko
	Ch-09 R-09	Chairman: Supriyadi
		Co-Chairman: Suharto Linuwih
DAY 1	Ch-10 R-10	Chairman: Ida Bagus Putu Mardana
		Co-Chairman: Muhammad Zuhair Zahid
	Ch-11 R-11	Chairman: I Wayan Muderawan
		Co-Chairman: Nanik Wijayanti
	Ch-12 R-12	Chairman: Ida Ayu Putu Suryanti
		Co-Chairman: Endah Peniati
	Ch-13 R-13	Chairman: I Nyoman Sukajaya
		Co-Chairman: Putriaji Hendikawati
DAY 2	Ch-14 R-01	Chairman *ex officio* Co-Chairman: Margareta Rahayuningsih
	Ch-15 R-02	Chairman *ex officio* Co-Chairman: Langlang Handayani
	Ch-16 R-03	Chairman: I Wayan Puja Astawa
		Co-Chairman: Adi Nur Cahyono
	Ch-17 R-04	Chairman *ex officio* Co-Chairman: Endang Sugiharti

List of Presentation Code and Title

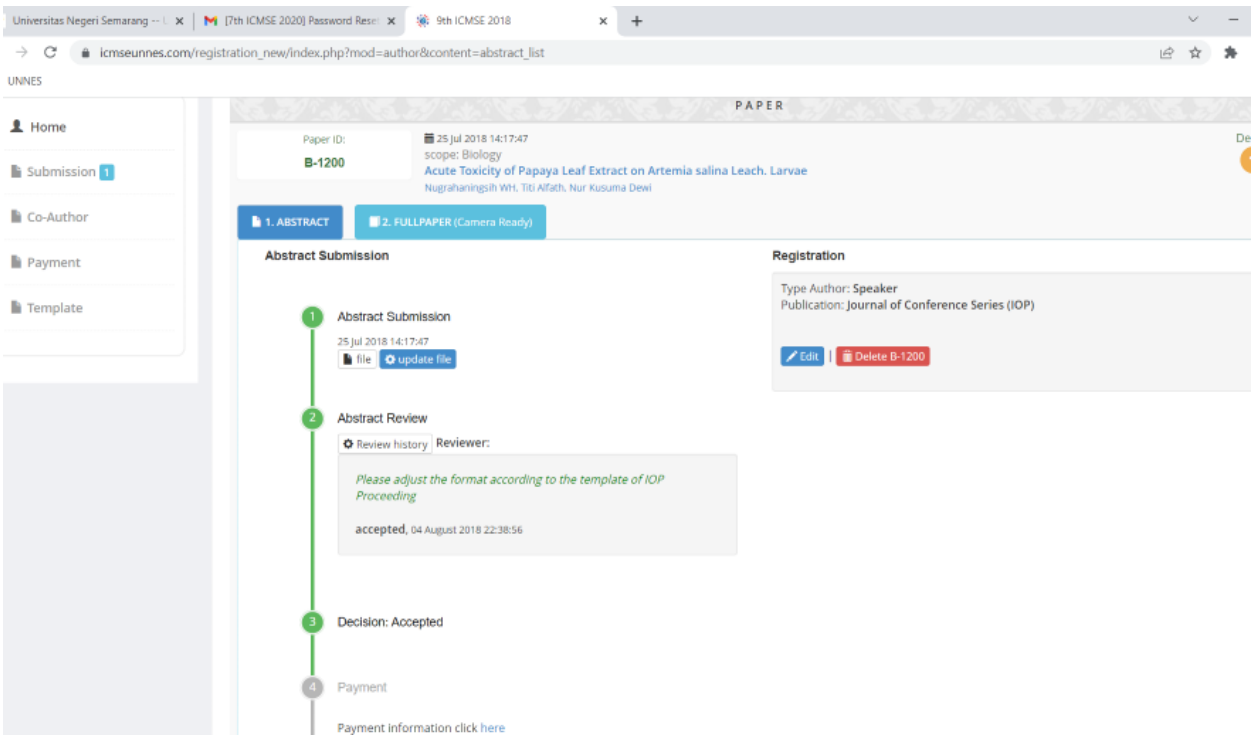
Biology	
Code	**Title and Author**
B-01	Estimating Population Size for Macrotermes gilvus Hagen (Blattodea: Termitidae) in Indonesia *N Subekti, R Mar'ah*
B-02	The Effects of Temperature and Acidity on Soybean Extraction to Obtain Highest Concentration of Cysteine *Dewi Mustikaningtyas, Sri Widyarti, Muhaimin Rifa'i, and Nashi Widodo*
B-03	Influence of Variation Concentration of Green Dry Mushroom (Trichoderma harzianum) on Making of Waste Composting Sawdust *Ibnul Mubarok*
B-04	Ethanolic Leaf Extracts of Waru (Hibiscus tiliaceus) Inhibit Biofilm Formation of Vibrio alginolyticus in vitro *Suhartono Suhartono, Lenni Fitri, Nurhaliza Nurhaliza, Yulia Sari Ismail, Risa Nursanty, Mahyuddin Mahyuddin, Miftahul Jannah*
B-05	Acute Toxicity of Papaya Leaf Extract on Artemia salina Leach. Larvae *Nugrahaningsih W H, Titi Alfath, Nur Kusuma Dewi*
B-06	Insect pests that attack the coconut plants in Jepara *D R Indriyanti, Z T Utami, M Slamet*
B-07	Isolation and characterization of biofilm-mediated vibriosis-causing bacteria on the giant freshwater prawn (Macrobrachium rosenbergiii) aquaculture *Suhartono Suhartono, Syarifah Raisha Muhayya, Risa Nursanty, Evarianti Evarianti, Yulia Sari Ismal*
B-08	The contribution of metacognitive towards SOLO thinking skill of students through inquiry-based learning implementation *J. H. Nunaki, I. Damopolii, E. Nusantari, N. Y. Kandowangko*
B-09	Tempe yogurt: an alternative and more preferable plant derived yogurt with high nutritional and antioxidant value *Siti Harnina Bintari, Sarjana Parman*
B-10	Characterization of mahogany leaf litter (Swietenia macrophylla King) as a raw material of decay resistance biocomposite *F F D Ummayah, A F Anwar, F Fibriana, N P Aryani, D Alighiri, Harjono, Masturi*
B-11	The Role of Students Science Literacy In Indonesia *Yusi Ardiyanti*
B-12	Lactobacillus species Fructobacillus fructosus in liquid gold Heteotrigona itama honey *Syariffah Nuratiqah Syed Yaacob, Roswanira Abdul Wahab, Raja Kamarulzaman Raja Ibrahim, Fahrul Huyop*
Chemistry	
C-01	Statistically-assisted optimization of synthesis of eugenyl benzoate by chitosan-chitin nanowhiskers supported lipase *Roswanira Abdul Wahab, Fatin Myra Abdul Manan*
C-02	The tenth grader high school profile of critical thinking skills analysis on redox concept *Ratna Kumala Dewi, Sri Wardani, Nanik Wijayati*
C-03	Review of Metal Corrosion in Food Cans

M-108	Missing Data Analysis using Gibbs-Sampler *Subanar*
M-109	Stimulus For Facilitating Junior High School Student's Thinking in Mathematic *Ary Woro Kurniasih, ISti Hidayah, Mohammad Asikin*
M-110	Development of Circle Learning Media to Improve Student Learning Outcomes *Ni Made Dwijayani*
M-111	Combining Black Litterman Model with Clustering Procedure on Portfolio Construction *Retno Subekti, Eminugroho Ratna Sari and Rosita Kusumawati*
M-112	Heuristic Decision Making in Proving Algebra Abstract *Junarti, YLSukestiyarno, Stevanus Budi Waluya, Rochmad*
	Physics
P-01	Composite Brake Material Reinforced Pineapple Leaf Fibers *Sutikno Madnasri, Putut Marwoto, Gudel Astika*
P-02	Modeling Response Time Lapse Micogravity Vertical Gradient (TLMVG) Anomaly Due to Fluid Volume Changes of Sub Surface and its Implementation in Kota Lama Semarang *Supriyadi, Khumaedi, Sugiyanto, M.Ikhsan, Sarkowi*
P-03	Location of Sinabung Volcano Magma Chamber on 2013 using Simulated Annealing Inversion Scheme *Ratih Kumalasari, Wahyu Srigutomo, Mitra Djamal, Irwan Meilano, Maria Evita, Hendra Gunawan*
P-04	Student Conception of Ohm's Law *Ihtiari Prastyaningrum*
P-05	The Analysis of Prospective Science Teacher Students' Reasoning in Understanding the Physical Phenomenon through P-Prims Perspective *Eko Juliyanto, Siswanto*
P-06	Influence of Annealing Temperature on the Morphology and Oxygen Content of ZnO:Ga Thin Film *Lana Khanifah, Sulhadi, Sugianto, Budi Astuti, Edy Wibowo, Putut Marwoto*
P-07	Preliminary Study of Great Earthquakes Relocation in the Last Decade (2008-2018) in Sulawesi Island *A. M. Miftahul Huda, Nuruddin Kafy El-Ridlo*
P-08	Developing an Instrument of Scientific Literacy Assessment to Measure Natural Science Teacher Candidates in Force Subject *A Rusilowati, A Yulianto, Ikhsannudin*
P-09	A colorimetric label for detecting acetic acid vapor using Ipomoea pes-caprae flower extract as a functional dye *Mega Syintia, Cuk Imawan*
P-10	A Colorimetric Indicator from Soy Black Extract for Temperature Monitoring *Ruth Chrysna Lumban Tobing, Cuk Imawan*
P-11	Deformation of a Magnetized Quark Star in Rastall Gravity *Ryan Rizaldy, Anto Sulaksono*
P-12	The Effect of pH on The Characteristics of The Methyl Red Solution as a Gamma-Ray Dosimeter

Korespondensi

Tanggal	Kegiatan
25 Juli 2018	Submit abstrak melalui sistem
4 Agustus 2018	Abstrak accepted
8-9 Oktober 2018	Pelaksanaan conference
18 Oktober 2018	Upload fulltext
20 Januari 2019	Hasil review diunduh
24 Januari 2029	Upload hasil revisi

History submit abstrak



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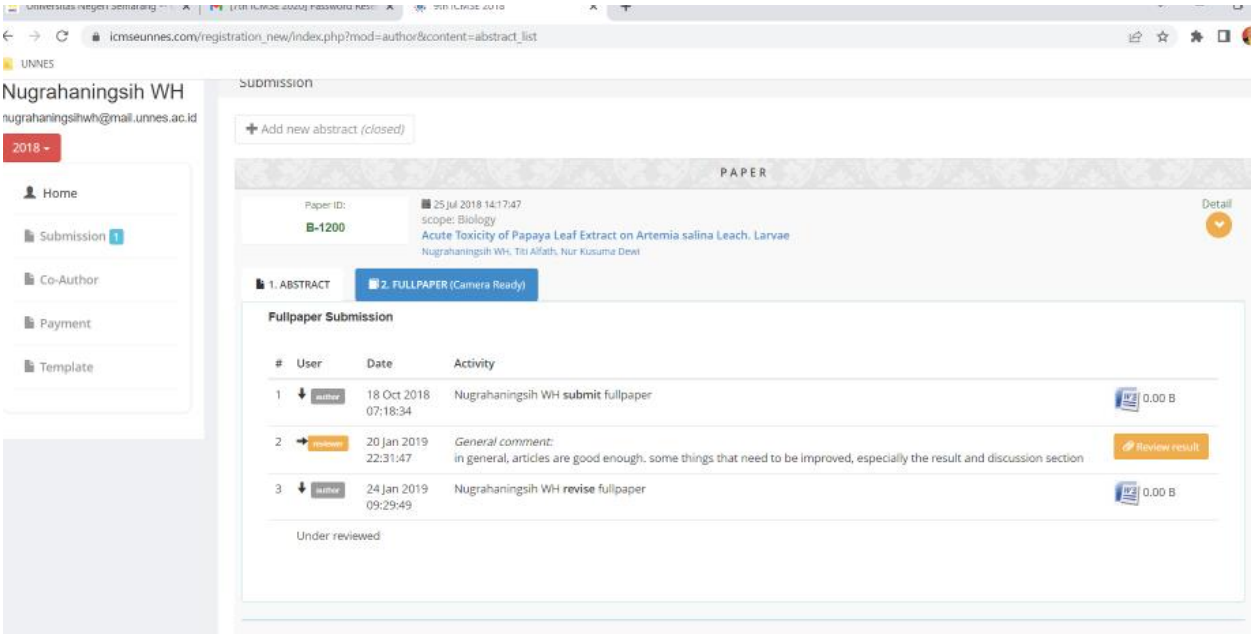
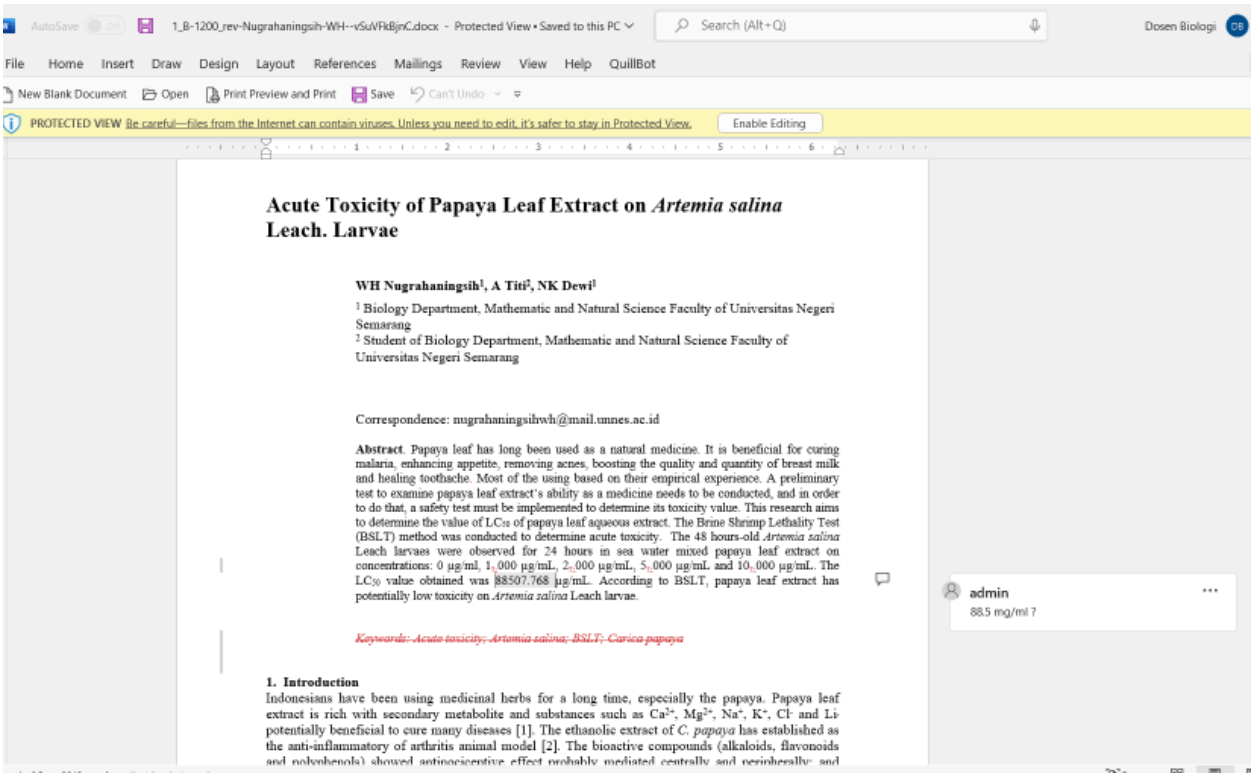


Hasil Review



used to medicine. The previous study suggested the different effect of polar and nonpolar solvent to get the extract. A preliminary test on papaya leaf aqueous extract's capacity as medicine must be performed by means of a safety test to determine its toxicity value. Mortality test using *Artemia salina* Leach. has been proven to be an effective research tool. Regardless, brine shrimp test is an easier toxicity screening procedure. This method is simpler—a small amount of substances is already sufficient to conduct a micro-scale test. Furthermore, this method is easy to perform, affordable, fast and quite accurate [9]. This research aims to determine the LC_{50} value based on the toxicity test of papaya leaf aqueous extract on *Artemia salina* Leach larvae.

2. Material and Methods

The acute toxicity test was conducted in the Laboratory of Biological Animals's Physiology of Universitas Negeri Semarang. The acute toxicity test was conducted by practicing the Brine Shrimp Lethality Test (BSLT). Consecutively, the following activities are parts of the research procedures: *Artemia salina* Leach. Larvae preparation, toxicity test using BSLT, and LC_{50} analysis.

2.1. Artemia salina Leach larvae preparation

A. salina Leach. eggs and sea water with 30% salinity were provided by the Balai Besar Pengembangan Budidaya Air Payau (BBPBAP/Center for Brackish Water Culture Development) of Jepara, Jawa Tengah, Indonesia. The *A. salina* Leach. eggs were hatched by soaking them in seawater within a petridish at room temperature with adequate lights. *A. salina* Leach. eggs eligible for the test were those sinking in salt water, while those floated were not used. The eggs hatched after being in larvae phase for 24 hours and those categorized as actively moving 48 hours-old larvae were chosen for the toxicity test [10].

2.2. Toxicity Test

The toxicity test of papaya leaf extract was conducted by BSLT modified how Meyer *et al.* did [11]. The first prepared 25 flacons, divided into five groups for five repeated of each concentration. The control group (K) were added papaya leaf extract solution in the seawater, with a concentration of 0 µg/mL until the final volume reached 5 mL. The concentration of *Carica papaya* leaf extract on experiment groups were 1,000 µg/mL (P1), 2,000 µg/mL (P2), 5,000 µg/mL (P3) and 10,000 µg/mL. The *A. salina* Leach larvae were added to flacon, ten larvae each flacon. The BSLT toxicity test was conducted for 24 hours at room temperature in a well-lit room. After 24 hours of test, *A. salina* Leach. Larvae were observed and the number of dead larvae in each concentration was counted. Finally, the mortality rate and the LC_{50} value were determined.

2.3. LC_{50} Analysis

admin
What does it mean?

conducted in Microsoft excel function.

3. Results and Discussion

The result of papaya leaf extract toxicity test on the 48 hours-old *A. salina* Leach. larvae is presented in Table 1. Total mortality rate was obtained by summing the number of dead *A. salina* Leach. larvae in each papaya leaf extract concentration, while the average larvae mortality was obtained by dividing the total mortality of larvae in each concentration with the number of replications conducted. Furthermore, the larvae mortality percentage was derived from the mortality average rate in each concentration.

Table 1. Number of dead *A. salina* Leach. larvae due to exposure to papaya leaf extract calculated using BSLT.

admin
Results and discusion

Replication number	Number of dead *A. salina* Leach. larvae in each papaya leaf extract concentration (µg/mL)				
	0 µg/mL	1000 µg/mL	2000 µg/mL	5000 µg/mL	10000 µg/mL
1	0	0	0	3	1
2	0	0	1	0	1
3	0	0	0	1	0
4	0	0	0	1	1

Total mortality rate	0	0	1	8	4
Average	0	0	0.2	1.6	0.8
Mortality percentage	0 %	0%	2%	16%	8%

The LC_{50} value obtained from papaya leaf extract toxicity test on *A. salina* Leach. larvae was 88,507.768 µg/mL. The lower limit is 15,822.484 µg/mL, while the upper limit is 1,275E+180 µg/mL.

admin
What does it means? Did you mean 88.5 mg/ml?

4. Discussion

Papayas are plants widely spread in tropical and several sub-tropical regions. It is commonly known that papaya leaves are good for health. Papaya leaf extract is rich with metabolite compounds, such as alkaloid, saponin, flavonoid and free terpenoid. The secondary metabolites found in the papaya leaf liquid extract were tannin, flavonoid, saponin, phenol, steroid and alkaloid [12]. The toxicity test using BSLT, which is a preliminary safety test performed on a certain medicine, produced insights on the LC_{50} value of papaya leaf extract when tested on *A. salina* Leach. larvae. The *A. salina* test may expedite toxicity experiments and decrease costs, and therefore, may be considered an alternative to the in vitro cell culture assay [13]. The result of BSLT can be function as a preliminary research for the separation of compounds having the potential to be toxic. The BSLT method uses the 48 hours-old *A. salina* Leach. larvae as test animals because they have characteristics similar with those of mammals, e.g. having the DNA-dependent RNA polymerase DNA. The thin skin of *A. salina* Leach. larvae sensitive to its environment, they are commonly used in toxicity tests.

admin
What does it means? Did you mean 15.8 mg?

admin
discussion combined with results

The result of the toxicity test of papaya leaf extract on *A. salina* Leach. larvae showed the high value. In comparison with seed, the LC_{50} value of leaf extract was higher than seed. The 96-h LC_{50} of pawpaw seed powder to adult tilapia is 4.2 mg/l with 95% confidence limit of 31.86 – 93.81 mg/L [14].

admin
What does it means?
This sentence is confusing

In comparison with ethanolic extract, the LC_{50} of aqueous extract was lower. The high value of LC_{50} indicated the safety to consume. The similar study showed that papaya leaf ethanolic extract effective in killing larvae of *Anopheles sp*, LC_{50} value were 422.311 ppm, 1399.577 ppm (LC_{90}) [6]. Another study suggested acute toxicity leaf extract at 2000 mg/kg BW administered orally to Sprague Dawley rats did not caused any death or acute adverse effect on the clinical observation and mortality [15]. Orally given for 28 days did not produce treatment related changes in body weight, food intake, water level, hematological parameters and serum biochemistry [16].

Solvent selection is based on the specific characteristics of the targeted bioactive compound [17]. Water is used as a solvent during this research's extraction process because it is not easily evaporated, stable, not highly flammable and widely available. This research is very important because water solvent is very easy to use shall it is meant for immediate implementation within the

they usually find food in the environment they live in. A larva would die because of its inability to detoxify harmful compounds that penetrate into its system.

The chemical compounds such as alkaloid, flavonoid and saponin within papaya leaf extract plays important roles in health. Saponin in papayas can heal wounds by boosting collagen production, an important protein for the healing process of wounds. The carpaine alkaloid is a distinct compound found in papayas, is toxic for microbes, and serve as a detox agent within the body. Flavonoid functions as an antioxidant, and as an antibiotic through its interfere with microorganism functions. Furthermore, it also serves as an antivirus for viruses such as HIV/AIDS and herpes.

Based on the LC_{50} value obtained from this research, papaya leaf extract cannot be used as an anti-cancer medicine. This is because the LC_{50} value in the research is above 1000 µg/ml. An extract is considered as having the potential to be used as an anti-cancer medicine if it has a toxicity with LC_{50} value lower than 1000 µg/mL. Meanwhile, for pure compounds, the value should be less than 200 µg/mL [11]. Researches on bioactive compounds had been conducted for the sake of human being's health, ranging from researches on how they can be used as supplements to how they can be used as medicines. Based on the substances found within it, it can be concluded that papaya leaf extract studied in this research can be utilized to cure other diseases.

5. ~~4.~~ Conclusion

Carica papaya leaf widely used to prevent and cure against diseases. People eat the papaya leaf in way boiled, fresh, juice and infuse, those are use water as solvent. By the BSLT test, we concluded that aqueous extract of *Carica papaya* leaf had wide range dose in safety. The high value of LC_{50} implicated the potency of extract to prevent any disease included heal wounds and infection diseases. But, it is proven that the extract not potential to develop as anti-cancer medicine. The anti-cancer usually has low value of LC_{50}.

admin
need to add the latest research journals (last 7 years). At least 70%

admin
Example of Writing format :
[1] Aderhold J, Davydov V Yu, Fedler F, Klausing H, Mistele D, Rotter T, Semchinova O, Stemmer J

References

[1] Vyas SJ, Khatri TT, Ram VR., Dave PN and Joshi HS. 2014. ~~Biochemical Constituents in Leaf of Carica papaya Ethnomedical Plant of Kachchh Region.~~ *International Letters of Natural Sciences* **12**, 16-~~20.~~

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[3] Anaga AO and Onehi EV 2010 ~~Antinociceptive and anti-inflammatory effects of the methanol seed extract of *Carica papaya* in mice and rats~~ *African Journal of Pharmacy and Pharmacology* **4**~~(4),~~140–~~144~~

[4] Nirosha N &| Mangalanayaki R.2013 ~~Antibacterial Activity of Leaves and Stem Extract of Carica papaya L.~~ *International Journal of Advances in Pharmacy, Biology and Chemistry*, **2**~~(3),~~ 473-~~476~~

[5] [upper part of entry cut off] ~~and pupicidal properties of Carica papaya (Caricaceae) leaf extract and bacterial insecticide, spinosad, against chikungunya vector, Aedes aegypti (Diptera: Culicidae)~~ *Parasitol Res* **110**~~,~~ 669~~-678~~

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[7] Siddique O, Sundus A and Ibrahim MF 2014 ~~Effects of papaya leaves on thrombocyte counts in dengue — a case report~~ *Pak Med Assoc* **64**~~(3)~~:*364~~-366~~*

admin
Cek Abbreviation: https://marcinwrochna.github.io/abbreviso

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Cek Abbreviation: https://marcinwrochna.github.io/abbreviso

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