

DAFTAR PUSTAKA

- Ahmadi, Zahra, and Milad Ashrafizadeh. 2018. "Downregulation of Osteocalcin Gene in Chickens Treated with Lead Acetate II." *International biological and biomedical journal* 4(4): 177–82.
- Bernhard, David. 2011. *Cigarette Smoke Toxicity: Linking Individual Chemicals to Human Diseases*. John Wiley & Sons.
- Dan, Jean C. 1956. "THE ACROSOME REACTION." In edisi. G H Bourne and J F B T - International Review of Cytology Danielli. Academic Press, 365–93.
- Devy, Sisca. 2018. "Hubungan Kualitas Sperma Pada Perokok Berat Dan Bukan Perokok Pada Mahasiswa." *Jurnal Kesehatan masyarakat & Gizi (JKG)* 1(1): 35–42.
- De Lamirande, E., Leclerc, P., & Gagnon, C. 1997. Capacitation as a regulatory event that primes spermatozoa for the acrosome reaction and fertilization. *journal Molecular Human Reproduction*.
- DEWI, SARASMITA NIRMALA. 2019. "PENGARUH PEMBERIAN EKSTRAK ETANOL KULIT BATANG BAKAU MINYAK (Rhizophora Apiculata) TERHADAP HISTOPATOLOGI GINJAL TIKUS PUTIH JANTAN (Rattus Norvergicus) GALUR SPRAGUE-DAWLEY YANG DIPAPARKAN ASAP ROKOK." *Fakultas Kedokteran*.
- Dja'afara, Ayu L, Benny Wantouw, and Lydia Tendean. 2015. "Pengaruh Pemberian Kopi Terhadap Kualitas Spermatozoa Tikus Wistar Jantan (Rattus Norvegicus) Yang Diberi Paparan Asap Rokok." *eBiomedik* 3(2).
- Fadilla Rahma, Martha Ardiaria, Binar Panunggal*. 2019. "PENGARUH PEMBERIAN UBI JALAR UNGU (Ipomoea Batatas L. Poir) TERHADAP KADAR LEUKOSIT TOTAL TIKUS WISTAR JANTAN (Rattus Norvegicus) YANG DIPAPAR ASAP ROKOK." *Journal of Nutrition College* 8: 2–9.
- Gardner, D, and Dolores Shoback. 2011. "Greenspan's Basic and Clinical Endocrinology."
- Garrido, Nicolás et al. 2004. "Pro-Oxidative and Anti-Oxidative Imbalance in Human Semen and Its Relation with Male Fertility." *Asian journal of andrology* 6(1): 59–66.
- Han, J. H. et al. 2019. "Fate of the Micropenis and Constitutional Small Penis: Do They Grow to Normalcy in Puberty?" *Journal of Pediatric Urology*.
- Hani, Rani Cynthia, and Tiana Milanda. 2016. "REVIEW: MANFAAT ANTIOKSIDAN PADA TANAMAN BUAH DI INDONESIA". *Jurnal Farmaka* 14(1): 184–90.
- Harahap, Ervina Wati, Normalina Sandora, and Winarto. 2011. "Pengaruh Pemberian Antioksidan Vitamin C Dan E Terhadap Konsentrasi Spermatozoa Mencit (Mus

- Musculus) Yang Dipapar.” *Jurnal Ilmu Kedokteran* 5(1): 26–34.
- Harsa, Shenia Verinda. 2020. “Pengaruh Paparan Asap Rokok Terhadap Kadar Hormon Adiponektin Sebagai Faktor Resiko Terjadi Diabetes Melitus Tipe 2.” *Journal Majority* 9(1): 1–8.
- Hassanzadeh Davarani, Fatemeh et al. 2018. “Antifungal Nanoparticles Reduce Aflatoxin Contamination in Pistachio.” *Pistachio and Health Journal* 1(2): 26–33.
- Irianti, Sugiyanto, Nuranto, and Kuswandi. 2017. *Antioksidant*. Yogyakarta: <https://www.researchgate.net/publication/328979920>.
- Islamiyati, Ricka, and Ika Noviana Saputri. 2018. “Uji Perbedaan Aktivitas Antioksidan Dengan Variasi Konsentrasi Pelarut Etanol 70% Dan 96% Pada Ekstrak Etanol Daun Salam Menggunakan Metode Peredaman Radikal Bebas DPPH.” *Cendekia Journal of Pharmacy*.
- Jalili, C, F Khani, M R Salahshoor, and S H Roshankhah. 2014. “Protective Effect of Curcumin against Nicotine-Induced Damage on Reproductive Parameters in Male Mice.” *International Journal of Morphology* 32(3): 844–49.
- Janah, Miftahul, and Santi Martini. 2017. “Hubungan Antara Paparan Asap Rokok Dengan Kejadian Prehipertensi Relationship between Secondhand Smoke and Prehypertension.” *Jurnal Manajemen Kesehatan Yayasan RS. Dr. Soetomo* 3(2): 131–44.
- Kumala Sari, Lusya Oktora Ruma. 2006. “Pemanfaatan Obat Tradisional Dengan Pertimbangan Manfaat Dan Keamanannya.” *Majalah Ilmu Kefarmasian* 3(1): 1.
- Lambert, Hovey et al. 1985. “Sperm Capacitation in the Human Female Reproductive Tract.” *Journal Fertility and sterility* 43(2): 325–27.
- De Lamirande, Eve, Pierre Leclerc, and Claude Gagnon. 1997. “Capacitation as a Regulatory Event That Primes Spermatozoa for the Acrosome Reaction and Fertilization.” *Molecular human reproduction* 3(3): 175–94.
- Liem, Andrian. 2010. “Pengaruh Nikotin Terhadap Aktivitas Dan Fungsi Otak Serta Hubungannya Dengan Gangguan Psikologis Pada Pecandu Rokok.” 18(2): 37–50.
- Lindquist, Chris M., Paul Nikolaidis, Pardeep K. Mittal, and Frank H. Miller. 2020. “MRI of the Penis.” *Journal Abdominal Radiology* 45(7): 2001–17.
- Lindson, N, E Klemperer, and P Aveyard. 2018. “Intervensi Pengurangan Merokok Untuk Berhenti Merokok (Protokol).” *cochrane perpustakaan* Edisi 11: 1–12.
- Luhulima, Franco, Lydia Tendean, and Edwin De Queljoe. 2014. “Pengaruh Pemberian Vitamin E Terhadap Kualitas Spermatozoa Mencit Jantan (Mus Musculus) Yang Diberi Paparan Suhu.” *Journal e-Biomedik (eBM)* 2(2).

- Makasendra, Rumbajan, Janette M, Turalaki, Grace L A. 2016. "Pengaruh Madu Terhadap Kualitas Spermatozoa Tikus Wistar (Rattus Norvegicus) Yang Diberi Paparan Asap Rokok." *Jurnal Biomedik(eBm)* 4(2).
- Mohammadghasemi, Fahimeh, and Sina Khajeh Jahromi. 2018. "Melatonin Ameliorates Testicular Damages Induced by Nicotine in Mice." *Iranian Journal of Basic Medical Sciences* 21(6): 639.
- Mohammadinejad, Reza et al. 2019. "Shedding Light on Gene Therapy: Carbon Dots for the Minimally Invasive Image-Guided Delivery of Plasmids and Noncoding RNAs-A Review." *Journal of advanced research* 18:
- Ningtiyas, Intan Fajar, and M Ricky Ramadhian. 2016. "Efektivitas Ekstrak Daun Salam Untuk Menurunkan Kadar Asam Urat Pada Penderita Arthritis Gout." *Medical Journal of Lampung University* 5(3).
- Nururrahmah. 2014. "Pengaruh Rokok Terhadap Kesehatan Dan Pembentukan Karakter Manusia." *Prosiding Seminar Nasional* 01.
- Parwati, Elsy Putri, and STIKes Surya Mitra Husada. 2018. "Pengaruh Merokok Pada Perokok Aktif Dan Perokok Pasif Terhadap Kadar Trigliserida."
- Pentel, Paul R et al. 2000. "A Nicotine Conjugate Vaccine Reduces Nicotine Distribution to Brain and Attenuates Its Behavioral and Cardiovascular Effects in Rats." *Pharmacology Biochemistry and Behavior* 65(1): 191–98.
- PERADIS. 2009. "Peranan Antioksidan Dalam Pembekuan Semen." *Jurnal Peternakan* 6(2): 63–70.
- Prayoga, Prianggara Rostu. 2015. "The Effect Of Tomato (Lycopersicum Esculentum Mill) To Amount , Motility , And Morphology Of Spermatozoa In Cigarettes-Induced Infertilty Patients." *Journal Majority* 4(5): 60–66.
- Proschenko, and P. Viktor. 2012. Penerbit Buku Kedokteran EGC, *Histologi Dasar Junqueira*.
- Putri, Aryati Pratama. 2015. "Efek Vitamin C Terhadap Kualitas Spermatozoa Yang Diberi Paparan Asap Rokok." *J Majority* 4(1).
- Rafiei, Hossein, Zahra Ahmadi, and Milad Ashrafizadeh. 2018. "Effects of Orally Administered Lead Acetate II on Rat Femur Histology, Mineralization Properties and Expression of Osteocalcin Gene." *International biological and biomedical journal* 4(3).
- Ramli, Suzita, Son Radu, Khozirah Shaari, and Yaya Rukayadi. 2017. "Aktivitas Antibakteri Ekstrak Etanolik *Syzygium Polyanthum* L. (daun salam) Meninggalkan Patogen Yang Ditularkan Melalui Makanan Dan Aplikasi Sebagai Pembersih Makanan." *BioMed Research International* 2017.

- Rao, B, J C Soufir, M Martin, and G David. 1989. "Lipid Peroxidation in Human Spermatozoa as Related to Midpiece Abnormalities and Motility." *Gamete research* 24(2).
- Sheet, Fact. 2011. "Masalah Rokok Di Indonesia."
- Silalahi, Marina. 2017. "Syzygium Polyanthum (Wight) Walp.(Botani, Metabolit Sekunder Dan Pemanfaatan)." *Jurnal Dinamika Pendidikan* 10(1): 187–202.
- Siregar, Ratih Nur Indah. 2015. "The Effect of Eugenia Polyantha Extract on LDL." *Journal Majority* 4(5): 85–92.
- Susilawati, Trinil. 2011. *Spermatologi*. Malang: Universitas Brawijaya Press.
- Werdhasari, Asri. 2014. "Peran Antioksidan Bagi Kesehatan." *Jurnal Biotek Medisiana Indonesia* 3(2): : 59-68.
- Yulianto, Elham Agus. 2015. "Persepsi Siswa Smk Kristen (Ti) Salatiga Tentang Bahaya Merokok Bagi Kesehatan." *ACTIVE: Journal of Physical Education, Sport, Health and Recreation* 4(5).



UNIVERSITAS ISLAM NEGERI
SUMATERA UTARA MEDAN



**KEMENTERIAN AGAMA REPUBLIK INDONESIA
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Nomor : B.806/ST.I/ST.V.2/TL.00/09/2021
Lampiran : -
Hal : Izin Identifikasi Tumbuhan

16 September 2021

Yth.

Kepala Laboratorium Herbarium Medanense (MEDA) USU Medan

Dengan hormat,

sehubungan dengan penyelesaian Skripsi (karya Ilmiah) mahasiswa Fakultas Sains dan Teknologi UIN Sumatera Utara Medan, maka kami mohon kiranya Bapak/Ibu Kepala Laboratorium Herbarium Medanense (MEDA) USU Medan berkenan menerima, membimbing dan memberikan informasi/data kepada mahasiswa di bawah ini:

Nama : **Amir Dian Parulian Silalahi**
Nim : 0704173112
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Alamat : Jl Karya Bakti 171 Medan Timur
HP : 082286455478

untuk melaksanakan penelitian skripsi dengan judul "Pengaruh Pemberian Ekstrak Daun Salam (*Syzygium polyanthum*) Terhadap Berat Testis Dan Kualitas Spermatozoa Tikus Putih (*Rattus Novergicus* L.) Jantan Yang Dipapar Asap Rokok".

Demikian disampaikan, atas perhatian dan kerjasama yang baik kami ucapkan terima kasih.

Hormat Saya,
an. Dekan
Wakil Dekan Bidang Akademik
dan Kelembagaan



Dr. Abdul Halim Daulay, ST., M.Si
NIP. 196111062005011003



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
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Nomor : 377/UN5.2.1.8.3.10/KPM/2021
Lampiran : -
Perihal : Hasil Skrining Fitokimia

Kepada Yth,
Amir Dian Parulian Silalahi
Medan

Bersama ini kami sampaikan hasil skrining dari sampel yang saudara kirimkan ke Laboratorium Kimia Organik FMIPA USU, adalah sebagai berikut :

| Daun Salam (<i>Syzygium polyanthum</i>) | | |
|---|---|-------|
| Senyawa Metabolit Sekunder | Perreaksi | Hasil |
| Alkaloid | Bouchardart | + |
| | Macyer | - |
| | Dragendorff | - |
| | Wagner | + |
| Steroida dan Triterpenoid | Salkowsky | - |
| | Lieberman-Burchad | - |
| Saponin | Aquadest+Alkohol 96% | + |
| Flavonoida | FeCl ₃ 5% | + |
| | Mg _(co) + HCl _(p) | - |
| | NaOH 10% | - |
| | H ₂ SO ₄ (p) | - |
| Tanin | FeCl ₃ 1% | + |
| Glikosida | Mollish | - |

Keterangan : (-) : Tidak Terdeteksi Senyawa Metabolit Sekunder
(+) : Terdeteksi Senyawa Metabolit Sekunder

Demikian surat Hasil Skrining Fitokimia sampel Daun Salam (*Syzygium polyanthum*) dibuat, terima kasih.

Medan, 28 September 2021
Kepala,

Dr. Juliati Br. Tarigan, M.Si
NIP 197205031999032001

Lampiran 2. Analisis Data Penelitian

Test of Homogeneity of Variances

| | | Levene Statistic | df1 | df2 | Sig. |
|------------------------|---|---------------------|-----|--------|------|
| spermatoginimum | Based on Mean | .693 | 4 | 20 | .606 |
| | Based on Median | .446 | 4 | 20 | .774 |
| | Based on Median and with adjusted df | .446 | 4 | 15.502 | .774 |
| | Based on trimmed mean | .674 | 4 | 20 | .618 |
| spermatosit_prime r | Based on Mean | 1.163 | 4 | 20 | .357 |
| | Based on Median | .560 | 4 | 20 | .694 |
| | Based on Median and with adjusted df | .560 | 4 | 18.106 | .695 |
| | Based on trimmed mean | 1.125 | 4 | 20 | .373 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|------------------------|-------------------|-------------------|----|----------------|--------|------|
| spermatoginimum | Between Groups | 107.366 | 4 | 26.842 | 1.245 | .324 |
| | Within Groups | 431.168 | 20 | 21.558 | | |
| | Total | 538.534 | 24 | | | |
| spermatosit_prime r | Between Groups | 392.042 | 4 | 98.010 | 10.036 | .000 |
| | Within Groups | 195.312 | 20 | 9.766 | | |
| | Total | 587.354 | 24 | | | |

spermatoginimum

Duncan^a

| Kelompok | N | Subset for alpha = 0.05 |
|----------|---|----------------------------|
| | | 1 |

| | | |
|------|---|---------|
| 2 | 5 | 27.0800 |
| 5 | 5 | 30.9200 |
| 3 | 5 | 31.7200 |
| 4 | 5 | 31.9600 |
| 1 | 5 | 33.1600 |
| Sig. | | .076 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

spermatisit_primer

Duncan^a

| Kelompok | N | Subset for alpha = 0.05 | | |
|----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| 2 | 5 | 22.3600 | | |
| 1 | 5 | | 27.1200 | |
| 5 | 5 | | 28.1600 | |
| 4 | 5 | | 28.5200 | |
| 3 | 5 | | | 34.7600 |
| Sig. | | 1.000 | .512 | 1.000 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Descriptives

Diameter_tubulus

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|----------|----------------|------------|----------------------------------|-------------|---------|---------|
| | | | | | Lower Bound | Upper Bound | | |
| 1 | 5 | 238.2600 | 39.79193 | 17.79549 | 188.8518 | 287.6682 | 198.00 | 293.80 |
| 2 | 5 | 191.4900 | 20.92693 | 9.35881 | 165.5058 | 217.4742 | 162.30 | 216.02 |
| 3 | 5 | 236.6360 | 30.81857 | 13.78248 | 198.3697 | 274.9023 | 183.82 | 261.97 |
| 4 | 5 | 268.4340 | 20.38233 | 9.11526 | 243.1260 | 293.7420 | 244.03 | 291.97 |
| 5 | 5 | 270.2460 | 12.11901 | 5.41979 | 255.1983 | 285.2937 | 254.43 | 280.54 |

| | | | | | | | | |
|-----|----|-------|----------|-------|----------|----------|-------|--------|
| Tot | 25 | 241.0 | 37.94867 | 7.589 | 225.3488 | 256.6776 | 162.3 | 293.80 |
| al | | 132 | | 73 | | | 0 | |

Test of Homogeneity of Variances

| | | Levene | df1 | df2 | Sig. |
|------------------|--------------------------------------|-----------|-----|--------|------|
| | | Statistic | | | |
| Diameter_tubulus | Based on Mean | 1.458 | 4 | 20 | .252 |
| | Based on Median | .860 | 4 | 20 | .504 |
| | Based on Median and with adjusted df | .860 | 4 | 13.359 | .512 |
| | Based on trimmed mean | 1.453 | 4 | 20 | .254 |

ANOVA

Diameter_tubulus

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|-------|------|
| Between Groups | 20428.721 | 4 | 5107.180 | 7.227 | .001 |
| Within Groups | 14133.715 | 20 | 706.686 | | |
| Total | 34562.436 | 24 | | | |

Diameter_tubulus

Duncan^a

| Kelompok | N | Subset for alpha = 0.05 | |
|----------|---|-------------------------|----------|
| | | 1 | 2 |
| 2 | 5 | 191.4900 | |
| 3 | 5 | | 236.6360 |
| 1 | 5 | | 238.2600 |
| 4 | 5 | | 268.4340 |
| 5 | 5 | | 270.2460 |
| Sig. | | 1.000 | .080 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Descriptives

indexgonado_somatik

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|-------|----|--------|----------------|------------|----------------------------------|-------------|---------|---------|
| | | | | | Lower Bound | Upper Bound | | |
| 1 | 5 | 1.4660 | .16365 | .07318 | 1.2628 | 1.6692 | 1.18 | 1.57 |
| 2 | 5 | 1.3080 | .32813 | .14674 | .9006 | 1.7154 | .87 | 1.72 |
| 3 | 5 | 1.3660 | .09813 | .04389 | 1.2442 | 1.4878 | 1.23 | 1.50 |
| 4 | 5 | 1.1400 | .30602 | .13686 | .7600 | 1.5200 | .66 | 1.47 |
| 5 | 5 | 1.2040 | .20132 | .09003 | .9540 | 1.4540 | .99 | 1.41 |
| Total | 25 | 1.2968 | .24552 | .04910 | 1.1955 | 1.3981 | .66 | 1.72 |

ANOVA

indexgonado_somatik

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|-------|------|
| Between Groups | .334 | 4 | .083 | 1.499 | .240 |
| Within Groups | 1.113 | 20 | .056 | | |
| Total | 1.447 | 24 | | | |

indexgonado_somatik

Duncan^a

| Kelompok | N | Subset for alpha = 0.05 |
|----------|---|-------------------------|
| | | 1 |
| 4 | 5 | 1.1400 |
| 5 | 5 | 1.2040 |
| 2 | 5 | 1.3080 |
| 3 | 5 | 1.3660 |
| 1 | 5 | 1.4660 |
| Sig. | | .062 |

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Means for groups in homogeneous subsets are displayed.

Lampiran 1. Foto Dokumentasi Penelitian





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