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LAMPIRAN

Lampiran 1. Riwayat Akademik Peneliti



RIWAYAT AKADEMIK PENELITI

1. Nama Lengkap : Zulfa Fahraini
2. Jenis Kelamin : Perempuan
3. Tempat/Tgl Lahir : Sungai Pakning, 11 Mei 2004
4. Alamat Lengkap : Komplek Villaku Indah III Sungai Sapih
5. *E-mail*/HP : 2210070110043@student.unbrah.ac.id/082286516291
6. Riwayat Pendidikan :
 - a. TK : TK Pertiwi Sungai Pakning (2007)
 - b. SD : SDN 13 Sejangat (2009)
 - c. SLTP : MTsN 3 Bengkalis (2015)
 - d. SLTA : MAN 2 Kota Pekanbaru (2018)
7. Orang Tua :
 - a. Nama Ayah : Nasyaruddin
 Pekerjaan : Pegawai Swasta
 Alamat : Sungai Pakning, Bengkalis, Riau
 - b. Nama Ibu : Nurzakiyah
 Pekerjaan : PNS
 Alamat : Sungai Pakning, Bengkalis, Riau

Padang, 5 Januari 2026

Zulfa Fahraini
 NPM : 2210070110043

Lampiran 2. Surat Izin Pre Penelitian

| | | |
|---|---|---|
|  |  | FAKULTAS KEDOKTERAN GIGI Universitas Baiturrahmah Jl. Raya By Pass KM.14 Sei Saph - Padang, Sumatera Barat Indonesia 25159 +62 812 6722 2930 fkg@unbrah.ac.id |
|---|---|---|

Padang, 1 Agustus 2025

Nomor : B. Iz /KM/UNBRAH.2/ V/1 / 2025
 Hal : Permohonan Izin Melakukan Pre-Penelitian

Kepada Yth,
 Bapak / Ibu Kepala Laboratorium Penelitian Antar Universitas (PAU) Universitas Gadjah Mada

di
 Tempat


Dengan hormat,
 Bersama ini kami hadapkan mahasiswa Program Studi S-1 Kedokteran Gigi Fakultas Kedokteran Gigi Universitas Baiturrahmah :


Nama : Zulfa Fahraini
 Nomor Mahasiswa : 2210070110043
 Fakultas / Program Studi : Kedokteran Gigi

Agar dapat diizinkan melakukan Pre-Penelitian di :
 Tempat Penelitian : Laboratorium Penelitian Antar Universitas (PAU) Universitas Gadjah Mada
 Mulai Penelitian : 8 September 2025 sampai 12 September 2025
 Judul Penelitian : Uji Potensi Antibakteri Fraksi n-Heksan Bunga Gletang (*Tridax procumbens* L.) Terhadap Pertumbuhan Bakteri *Streptococcus mutans* dan *Enterococcus faecalis*


Segala biaya selama melakukan Pre-Penelitian sepenuhnya akan ditanggung oleh mahasiswa yang bersangkutan.

Atas kerjasama dan tercabulnya permohonan ini kami mengucapkan terima kasih.


 drg. Valentriyanti Ningrum, MPH, PhD



Tembusan Yth.
 1. Dekan FKG Unbrah
 2. Pertiagal

fkg.unbrah.ac.id 



FAKULTAS KEDOKTERAN GIGI

Universitas Baiturrahmah

Jl. Raya By Pass KM.14 Sei Sapih - Padang
Sumatera Barat Indonesia 25159
+62 812 6722 2930
fkg@unbrah.ac.id

Nomor : 17 /KM/UNBRAH.2/UN / 2025 Padang, 1 Agustus 2025
Hal : Permohonan Izin Melakukan Pre-Penelitian

Kepada Yth,
Bapak / Ibu Kepala Laboratorium Herbarium Universitas Andalas

di
Tempat

Dengan hormat,
Bersama ini kami hadapkan mahasiswa Program Studi S-1 Kedokteran Gigi Fakultas Kedokteran Gigi Universitas Baiturrahmah :

Nama : Zulfa Fahraini
Nomor Mahasiswa : 2210070110043
Fakultas / Program Studi : Kedokteran Gigi

Agar dapat diizinkan melakukan Pre-Penelitian di :
Tempat Penelitian : Laboratorium Herbarium Universitas Andalas
Mulai Penelitian : 3 Agustus 2025 sampai 9 Agustus 2025
Judul Penelitian : Uji Potensi Antibakteri Fraksi n-Heksan Bunga Gletang (*Tridax procumbens* L.)
Terhadap Pertumbuhan Bakteri *Streptococcus mutans* dan *Enterococcus faecalis*

Segala biaya selama melakukan Pre-Penelitian sepenuhnya akan ditanggung oleh mahasiswa yang bersangkutan.

Atas kerjasama dan tercabulnya permohonan ini kami mengucapkan terima kasih.

Wakil Dekan,

drg. Valeriyani Ningrum, MPH.PhD

Tembusan Yth.
1. Dekan FKG Unbrah
2. Peringgal

Lampiran 3. Surat Izin Penelitian



FAKULTAS KEDOKTERAN GIGI
Universitas Baiturrahmah
J. Raya By Pass KM. 14 Sel. Seleh - Padang
Sumatera Barat - Indonesia 25159
+62 812 6722 2930
fg@unbrah.ac.id

Nomor : 364/KMUNBRAH.2/ XI/ 2025 Padang, 17 November 2025
Hal : Permohonan Izin Melakukan Penelitian

Kepada Yth,
Bapak / Ibu Laboratorium Antar Universitas (PAU) Universitas Gajah Mada

di
Tempat

Dengan hormat,
Bersama ini kami hadapkan mahasiswa Program Studi S-1 Kedokteran Gigi Fakultas Kedokteran Gigi Universitas Baiturrahmah :

Nama : Zulfa Fahraini
Nomor Mahasiswa : 2210070110043
Fakultas / Program Studi : Kedokteran Gigi

Agar dapat diizinkan melakukan Penelitian di :
Tempat Penelitian : Laboratorium Antar Universitas (PAU) Universitas Gajah Mada
Mulai Penelitian : 18 November 2025 sampai 29 November 2025
Judul Penelitian : Uji Aktivitas Antibakteri Fraksi n-heksan Bunga Gletang (*Tridax procumbens L.*) terhadap Pertumbuhan Bakteri *Streptococcus mutans*

Segala biaya selama melakukan Penelitian sepenuhnya akan ditanggung oleh mahasiswa yang bersangkutan.

Atas kerjasama dan terkabulnya permohonan ini kami mengucapkan terima kasih.


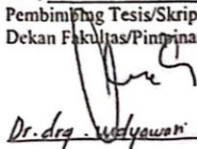

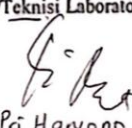




dr. Valentinus Nipgrum, MPH, PhD

Tembusan Yth.
1. Dekan FKG Unbrah
2. Perlinggal

fg unbrah ac id

Lampiran 4. Surat Keterangan Pemakaian Laboratorium Penelitian Antar Universitas (PAU) Universitas Gadjah Mada

| | |
|---|--|
|  | UNIVERSITAS GADJAH MADA Pusat Studi Pangan dan Gizi Jln. Teknika Utara, Borek, YOGYAKARTA 55281 Telp. 0274 589242, 6492282 Web : www.cfns.ugm.ac.id Email : cfns@ugm.ac.id |
| FORMULIR PEMAKAIAN FASILITAS LABORATORIUM | |
| Nama Mahasiswa/Peneliti | : <u>Zulfa Fahrani</u> |
| No. Mahasiswa | : <u>2210070110043</u> |
| Jurusan/Fakultas/Universitas | : <u>Universitas Baiturrahman</u> |
| Alamat Rumah & No. Telp./HP | : <u>Kos kaktus, Karang Villaku mada III, Sei Rapi, Padang. 082286516291</u> |
| Topik Penelitian/Judul : | <u>Uji Potensi Antibakteri Fraksi n-Hekran Bunga Gletang (Tidak termasuk L) Terhadap pertumbuhan bakteri Escherichia faecalis dan Streptococcus mutans</u> |
| Mulai bekerja pada tanggal | : <u>8 September 2025</u> |
| Rencana penyelesaian tanggal | : <u>12 September 2025</u> |
| Diperpanjang sampai tanggal | : _____ |
| Bekerja di laboratorium | : 1. Kimia Biokimia <input checked="" type="checkbox"/> 2. Mikrobiologi 3. Gizi 4. Rekayasa Pangan 5. Pengembangan Produk dan Uji Sensoris |
| Mahasiswa/Peneliti Yang bersangkutan | <u>Yogyakarta, 28 Agustus 2025</u> Pembimbing Tesis/Skripsi Dekan Fakultas/Pimpinan Lembaga  <u>Dr. drg. Widyawati, N. Kes. Sp. Ke.</u> |
|  <u>Zulfa Fahrani</u> | Kepala/Teknisi Laboratorium  <u>Pri Haryono</u> |
| Mengetahui : Sekretariat/Bagian Administrasi | Mengetahui, Kepala/Sekretaris,  <u>Prof. Dr. Uly Arsanti Lestari, STP, MP</u> |
|  <u>Th. Tri Susanti Nugrahani</u> | |

www.Goodnotes

Lampiran 5. Surat Hasil Identifikasi Tumbuhan



HERBARIUM UNIVERSITAS ANDALAS (ANDA)

Departemen Biologi FMIPA Universitas Andalas Kampus Limau Manih Padang
Sumbar Indonesia 25163 Telp. +62-751-777427 ext. *811 e-mail:
nas_herb@yahoo.com; herbariumandaunand@gmail.com

Nomor : 394/K-ID/ANDA/VIII/2025
Lampiran : -
Perihal : Hasil Identifikasi

Kepada yth,
Zulfa Fahraini
Di
Tempat


Dengan hormat,
Sehubungan dengan surat permohonan determinasi sampel dari Fakultas Kedokteran Gigi Universitas Baiturrahmah No. B.117/KM/UNBRAH.2/VII//2025 tanggal 1 Agustus 2025 di Herbarium Universitas Andalas Departemen Biologi FMIPA Universitas Andalas, kami telah membantu mengidentifikasi tumbuhan yang dibawa, dari:

Nama : Zulfa Fahraini
No. BP : 2210070110043
Instansi : Fakultas Kedokteran Gigi - Universitas Baiturrahmah


Berikut ini diberikan hasil identifikasi yang dikeluarkan dari Herbarium Universitas Andalas.

| No | Family | Spesies |
|----|------------|-----------------------------|
| 1. | Asteraceae | <i>Tridax procumbens</i> L. |

Demikian surat ini dibuat untuk dapat digunakan seperlunya.

Padang, 6 Agustus 2025
Kepala,

Dr. Nurainas
NIP. 196908141995122001

Lampiran 6. Surat Keterangan Layak Etik

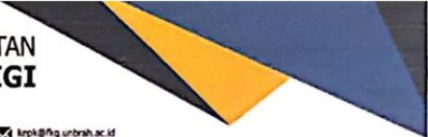


**KOMITE ETIK PENELITIAN KESEHATAN
FAKULTAS KEDOKTERAN GIGI**
Universitas Baiturrahmah

Jl. Raya By Pass KM 14 Sei Sasih - Padang,
Sumatera Barat, Indonesia 25159

+62 812-4975-9949

kep@fg.unbrah.ac.id



KETERANGAN LAYAK ETIK
DESCRIPTION OF ETHICAL EXEMPTION
"ETHICAL EXEMPTION"

No.A.044/KEPKFKGUNBRAH/XI/2025

Protokol penelitian versi 1 yang diusulkan oleh :
The research protocol proposed by

Peneliti utama : Zulfa Fahraini
Principal In Investigator

Nama Institusi : Universitas Baiturrahmah
Name of the Institution

Dengan judul:
Title

"Uji Potensi Antibakteri Fraksi n-Heksan Bunga Gletang (*Tridax procumbens L.*) Terhadap Pertumbuhan Bakteri *Streptococcus mutans*"


*"Antibacterial Potential Test of n-Hexane Fraction of Gletang Flower (*Tridax procumbens L.*) Against the Growth of *Streptococcus mutans* Bacteria"*

Dinyatakan layak etik sesuai 7 (tujuh) Standar WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan Beban dan Manfaat, 4) Risiko, 5) Bujukan/Eksploitasi, 6) Kerahasiaan dan Privacy, dan 7) Persetujuan Setelah Penjelasan, yang merujuk pada Pedoman CIOMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya indikator setiap standar.

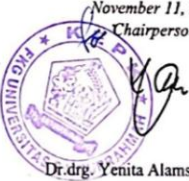
Declared to be ethically appropriate in accordance to 7 (seven) WHO 2011 Standards, 1) Social Values, 2) Scientific Values, 3) Equitable Assessment and Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Informed Consent, referring to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standard.

Pernyataan Laik Etik ini berlaku selama kurun waktu tanggal 11 November 2025 sampai dengan tanggal 11 November 2026.

This declaration of ethics applies during the period November 11, 2025 until November 11, 2026.



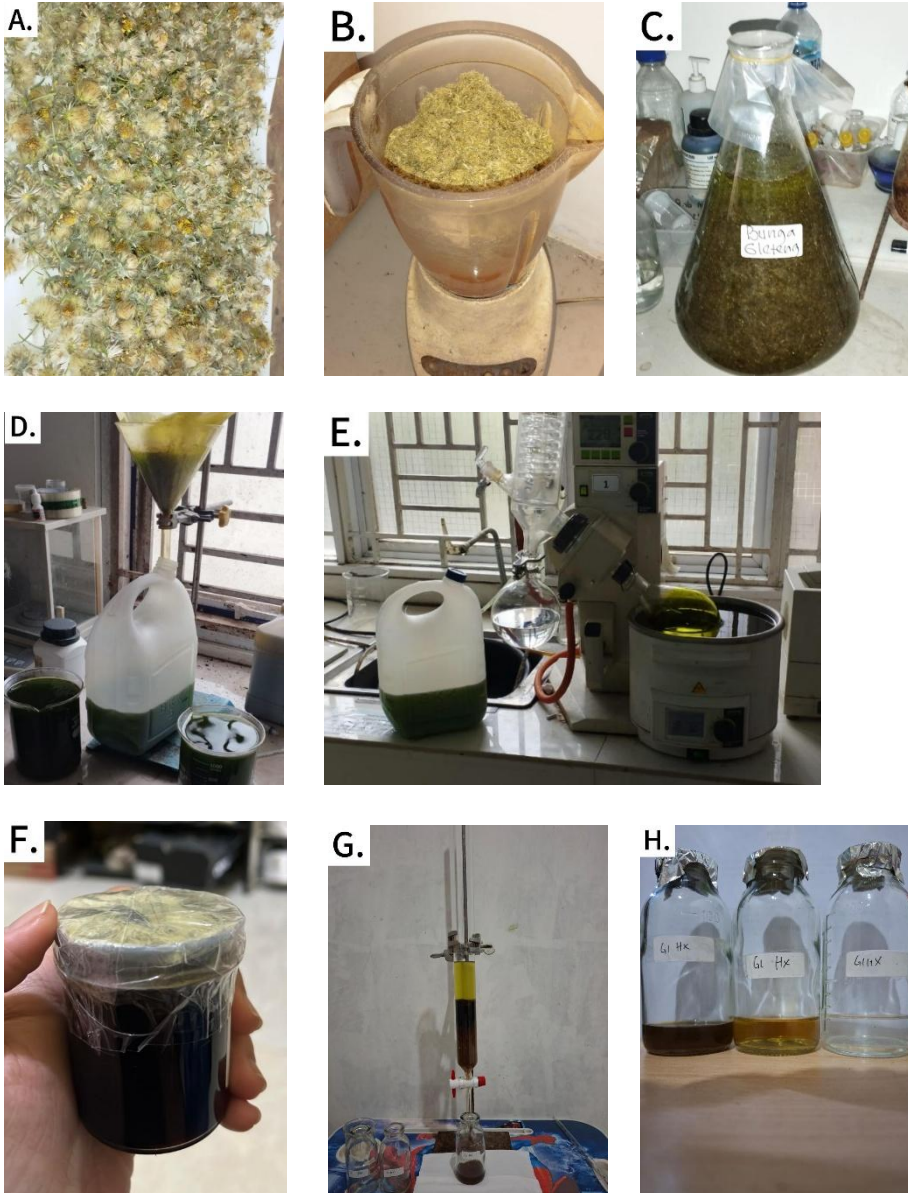
November 11, 2025
Chairperson.



Dr. drg. Yenita Alamsyah, M.Kes

Lampiran 7. Foto Pelaksanaan Penelitian

1. Pembuatan Ekstrak dan Fraksi

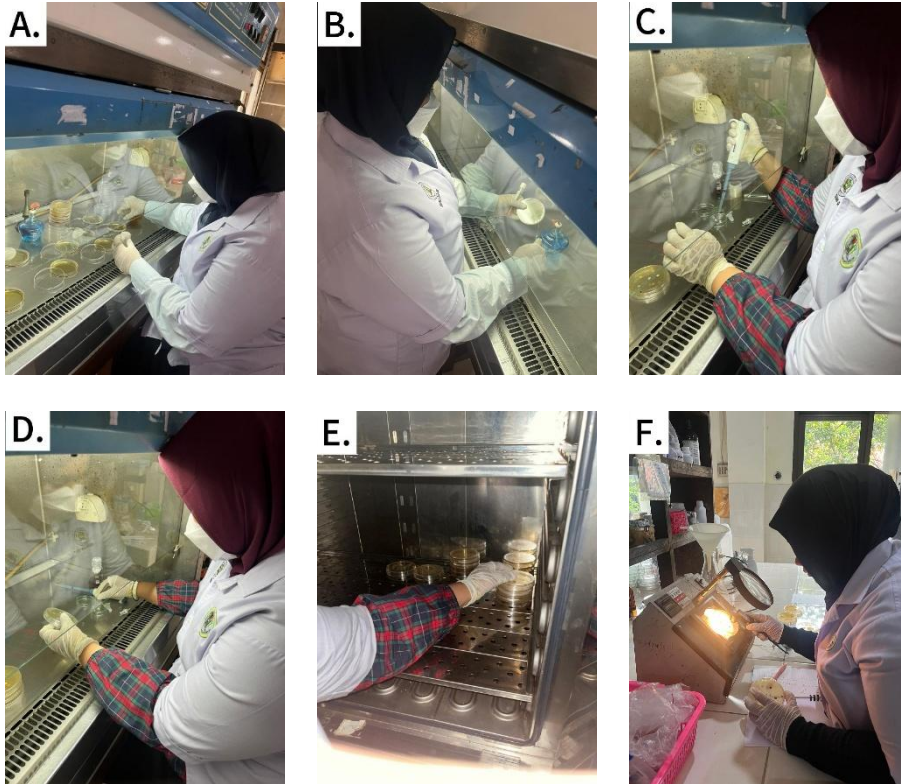


Keterangan :

- A. Bunga gletang yang sudah dicuci bersih dan dikeringkan
- B. Penghalusan bunga gletang
- C. Proses maserasi atau perendaman bunga gletang selama 3 x 24 jam
- D. Penyaringan bunga gletang menggunakan kertas saring *whatmann*
- E. Proses *rotary* bunga gletang
- F. Ekstrak kental bunga gletang (*Tridax procumbens L.*)

- G. Ekstrak pekat dan eluen serta silika gel dimasukkan dalam kolom secara perlahan hingga tidak membentuk gelembung
H. Fraksi n-heksan bunga gletang (*Tridax procumbens L.*)

2. Pengerjaan Uji Aktivitas Antibakteri



Keterangan :

- Persiapan dan pembuatan media agar
- Pengambilan bakteri dan penggoresan bakteri pada media agar
- Meletakkan kelompok perlakuan dan kelompok kontrol pada *paper disc*
- Meletakkan *paper disc* pada media agar
- Tutup media agar dan masukkan ke *anaerobic jar* selama 1x24 jam pada suhu 37°C

Lampiran 8. Master Tabel

| Perlakuan | Replikasi | Nilai (mm) | Kategori |
|------------------|------------------|-------------------|-----------------|
| 2,5% | 1 | 14,7 | Kuat |
| | 2 | 8,4 | Sedang |
| | 3 | 8,7 | Sedang |
| | 4 | 10,4 | Kuat |
| Rata-rata | | 10,55 | Kuat |
| 5% | 1 | 19,3 | Kuat |
| | 2 | 8,7 | Sedang |
| | 3 | 8,6 | Sedang |
| | 4 | 15,6 | Kuat |
| Rata-rata | | 13,05 | Kuat |
| 7,5% | 1 | 22,9 | Sangat Kuat |
| | 2 | 9,6 | Sedang |
| | 3 | 8,9 | Sedang |
| | 4 | 17 | Kuat |
| Rata-rata | | 14,6 | Kuat |
| 10% | 1 | 17,9 | Kuat |
| | 2 | 10,5 | Kuat |
| | 3 | 11,2 | Kuat |
| | 4 | 27,3 | Sangat Kuat |
| Rata-rata | | 16,725 | Kuat |

Lampiran 9. Hasil Output Analisis

A. Hasil Uji Normalitas Data

| Tests of Normality | | | | | | | |
|--------------------|-------------|---------------------------------|----|------|--------------|----|------|
| | Konsentrasi | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| S.Mutans | 2,5 | .271 | 4 | . | .841 | 4 | .199 |
| | 5 | .294 | 4 | . | .857 | 4 | .251 |
| | 7,5 | .274 | 4 | . | .891 | 4 | .389 |
| | 10 | .261 | 4 | . | .878 | 4 | .332 |
| | K+ | .441 | 4 | . | .630 | 4 | .001 |

a. Lilliefors Significance Correction

B. Hasil Uji Homogenitas Data

| Test of Homogeneity of Variance | | | | | | |
|---------------------------------|--------------------------------------|------------------|---|-------|------|------|
| | | Levene Statistic | | df1 | df2 | Sig. |
| | | | | | | |
| S.Mutans | Based on Mean | 4.550 | 4 | 15 | .013 | |
| | Based on Median | 3.216 | 4 | 15 | .043 | |
| | Based on Median and with adjusted df | 3.216 | 4 | 7.591 | .079 | |
| | Based on trimmed mean | 4.511 | 4 | 15 | .014 | |

C. Hasil Uji *Kruskal-Wallis*

| Ranks | | | |
|----------|-------------|----|-----------|
| | Konsentrasi | N | Mean Rank |
| S.Mutans | 2,5 | 4 | 9.38 |
| | 5 | 4 | 11.63 |
| | 7,5 | 4 | 13.50 |
| | 10 | 4 | 15.50 |
| | K+ | 4 | 2.50 |
| | Total | 20 | |

Test Statistics^{a,b}

| S.Mutans | |
|------------------|--------|
| Kruskal-Wallis H | 11.533 |
| df | 4 |
| Asymp. Sig. | .021 |

a. Kruskal Wallis Test

b. Grouping Variable: Konsentrasi

D. Hasil Uji *Man-Whitney*

| Ranks | | | | |
|----------|-------------|---|-----------|--------------|
| | Konsentrasi | N | Mean Rank | Sum of Ranks |
| S.Mutans | 2,5 | 4 | 3.88 | 15.50 |
| | 5 | 4 | 5.13 | 20.50 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 5.500 |
| Wilcoxon W | 15.500 |
| Z | -.726 |
| Asymp. Sig. (2-tailed) | .468 |
| Exact Sig. [2*(1-tailed Sig.)] | .486 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 2,5 | 4 | 3.50 | 14.00 |
| | 7,5 | 4 | 5.50 | 22.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 4.000 |
| Wilcoxon W | 14.000 |
| Z | -1.155 |
| Asymp. Sig. (2-tailed) | .248 |
| Exact Sig. [2*(1-tailed Sig.)] | .343 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 2,5 | 4 | 3.00 | 12.00 |
| | 10 | 4 | 6.00 | 24.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 2.000 |
| Wilcoxon W | 12.000 |
| Z | -1.732 |
| Asymp. Sig. (2-tailed) | .083 |
| Exact Sig. [2*(1-tailed Sig.)] | .114 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

Ranks

| Konsentrasi | N | Mean Rank | Sum of Ranks |
|-------------|---|-----------|--------------|
|-------------|---|-----------|--------------|

| | | | | |
|----------|-------|---|------|-------|
| S.Mutans | 2,5 | 4 | 6.50 | 26.00 |
| | K+ | 4 | 2.50 | 10.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | .000 |
| Wilcoxon W | 10.000 |
| Z | -2.366 |
| Asymp. Sig. (2-tailed) | .018 |
| Exact Sig. [2*(1-tailed Sig.)] | .029 ^b |

a. Grouping Variable: Konsentrasi

b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 5 | 4 | 3.75 | 15.00 |
| | 7,5 | 4 | 5.25 | 21.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 5.000 |
| Wilcoxon W | 15.000 |
| Z | -.866 |
| Asymp. Sig. (2-tailed) | .386 |
| Exact Sig. [2*(1-tailed Sig.)] | .486 ^b |

a. Grouping Variable: Konsentrasi

b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 5 | 4 | 3.75 | 15.00 |
| | 10 | 4 | 5.25 | 21.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 5.000 |
| Wilcoxon W | 15.000 |
| Z | -.866 |
| Asymp. Sig. (2-tailed) | .386 |
| Exact Sig. [2*(1-tailed Sig.)] | .486 ^b |

a. Grouping Variable: Konsentrasi

b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 5 | 4 | 6.50 | 26.00 |
| | K+ | 4 | 2.50 | 10.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | .000 |
| Wilcoxon W | 10.000 |
| Z | -2.366 |
| Asymp. Sig. (2-tailed) | .018 |
| Exact Sig. [2*(1-tailed Sig.)] | .029 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 7,5 | 4 | 3.75 | 15.00 |
| | 10 | 4 | 5.25 | 21.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|--------------------------------|-------------------|
| Mann-Whitney U | 5.000 |
| Wilcoxon W | 15.000 |
| Z | -.866 |
| Asymp. Sig. (2-tailed) | .386 |
| Exact Sig. [2*(1-tailed Sig.)] | .486 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

Ranks

| | Konsentrasi | N | Mean Rank | Sum of Ranks |
|----------|-------------|---|-----------|--------------|
| S.Mutans | 7,5 | 4 | 6.50 | 26.00 |
| | K+ | 4 | 2.50 | 10.00 |
| | Total | 8 | | |

Test Statistics^a

| S.Mutans | |
|----------------|--------|
| Mann-Whitney U | .000 |
| Wilcoxon W | 10.000 |

| | |
|--------------------------------|-------------------|
| Z | -2.366 |
| Asymp. Sig. (2-tailed) | .018 |
| Exact Sig. [2*(1-tailed Sig.)] | .029 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.

| | | Ranks | | | |
|----------|-------|-------------|---|-----------|--------------|
| | | Konsentrasi | N | Mean Rank | Sum of Ranks |
| S.Mutans | 10 | | 4 | 6.50 | 26.00 |
| | K+ | | 4 | 2.50 | 10.00 |
| | Total | | 8 | | |

Test Statistics^a

| | | S.Mutans |
|--------------------------------|--|-------------------|
| Mann-Whitney U | | .000 |
| Wilcoxon W | | 10.000 |
| Z | | -2.366 |
| Asymp. Sig. (2-tailed) | | .018 |
| Exact Sig. [2*(1-tailed Sig.)] | | .029 ^b |

- a. Grouping Variable: Konsentrasi
b. Not corrected for ties.