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Lampiran 1. Formulir Uji Organoleptik**Lembar Penilaian Uji Hedonik**

Tanggal Pengujian :

Nama Panelis :

Nama Produk : Dangke

Berikut Penilaian Saudara Terhadap Rasa, Warna, Aroma Dan Tekstur Berdasarkan Kriteria Penilaian Sebagai Berikut :

1. Sangat Suka (5)
2. Agak Suka (4)
3. Netral (Biasa) (3)
4. Agak Tidak Suka (2)
5. Sangat Tidak Suka (1)

| Kode Sampel | Tekstur | Warna | Aroma | Rasa |
|--------------------|----------------|--------------|--------------|-------------|
| 215 | | | | |
| 743 | | | | |
| 821 | | | | |

Lampiran 2. Hasil Uji Hedonik

Lampiran 2.1. Hasil Uji Hedonik Parameter Warna

| Panelis | Sampel | | |
|------------------|-------------|-------------|-------------|
| | K | A | B |
| 1 | 4 | 4 | 3 |
| 2 | 4 | 3 | 4 |
| 3 | 3 | 3 | 4 |
| 4 | 3 | 4 | 3 |
| 5 | 3 | 2 | 4 |
| 6 | 2 | 3 | 3 |
| 7 | 3 | 4 | 4 |
| 8 | 3 | 3 | 3 |
| 9 | 3 | 3 | 4 |
| 10 | 4 | 4 | 3 |
| 11 | 2 | 3 | 3 |
| 12 | 4 | 4 | 4 |
| 13 | 4 | 4 | 5 |
| 14 | 5 | 3 | 3 |
| 15 | 4 | 2 | 3 |
| 16 | 3 | 2 | 2 |
| 17 | 4 | 2 | 3 |
| 18 | 4 | 2 | 3 |
| 19 | 3 | 4 | 4 |
| 20 | 4 | 3 | 3 |
| 21 | 3 | 3 | 3 |
| 22 | 2 | 3 | 3 |
| 23 | 4 | 2 | 3 |
| 24 | 5 | 4 | 3 |
| 25 | 4 | 3 | 3 |
| Total | 87 | 77 | 83 |
| Rata rata | 3.48 | 3.08 | 3.32 |

Sumber: Hasil Penelitian, 2023

Lampiran 2.2 Hasil Uji Hedonik Parameter Aroma

| Panelis | Sampel | | |
|------------------|-------------|-------------|-----------|
| | K | A | B |
| 1 | 4 | 3 | 3 |
| 2 | 3 | 2 | 2 |
| 3 | 3 | 2 | 2 |
| 4 | 3 | 3 | 2 |
| 5 | 3 | 3 | 3 |
| 6 | 4 | 3 | 2 |
| 7 | 4 | 5 | 3 |
| 8 | 4 | 3 | 2 |
| 9 | 5 | 3 | 3 |
| 10 | 3 | 2 | 4 |
| 11 | 2 | 4 | 3 |
| 12 | 4 | 3 | 4 |
| 13 | 3 | 5 | 4 |
| 14 | 4 | 2 | 2 |
| 15 | 4 | 4 | 3 |
| 16 | 4 | 3 | 3 |
| 17 | 3 | 1 | 3 |
| 18 | 2 | 3 | 3 |
| 19 | 4 | 2 | 3 |
| 20 | 3 | 4 | 4 |
| 21 | 4 | 4 | 4 |
| 22 | 3 | 3 | 4 |
| 23 | 3 | 4 | 3 |
| 24 | 4 | 5 | 4 |
| 25 | 5 | 3 | 2 |
| TOTAL | 88 | 79 | 75 |
| Rata-rata | 3.52 | 3.16 | 3 |

Sumber : Hasil Penelitian, 2023.

Lampiran 2.3 Hasil Uji Hedonik Parameter Tekstur

| Panelis | Sampel | | |
|------------------|-----------|-------------|------------|
| | K | A | B |
| 1 | 4 | 4 | 2 |
| 2 | 2 | 3 | 2 |
| 3 | 4 | 3 | 3 |
| 4 | 3 | 4 | 4 |
| 5 | 2 | 2 | 4 |
| 6 | 3 | 4 | 4 |
| 7 | 3 | 4 | 4 |
| 8 | 4 | 4 | 4 |
| 9 | 3 | 4 | 4 |
| 10 | 4 | 4 | 5 |
| 11 | 3 | 4 | 5 |
| 12 | 3 | 3 | 4 |
| 13 | 4 | 3 | 4 |
| 14 | 3 | 3 | 3 |
| 15 | 4 | 3 | 4 |
| 16 | 2 | 3 | 3 |
| 17 | 3 | 2 | 4 |
| 18 | 3 | 3 | 3 |
| 19 | 3 | 3 | 4 |
| 20 | 4 | 3 | 5 |
| 21 | 3 | 4 | 5 |
| 22 | 1 | 3 | 4 |
| 23 | 2 | 3 | 4 |
| 24 | 2 | 3 | 4 |
| 25 | 3 | 3 | 3 |
| Total | 75 | 82 | 95 |
| Rata-rata | 3 | 3.28 | 3.8 |

Sumber: Hasil Penelitian, 2023.

Lampiran 2.4 Hasil Uji Hedonik Parameter Rasa

| Panelis | Sampel | | |
|------------------|-------------|------------|-------------|
| | K | A | B |
| 1 | 4 | 2 | 3 |
| 2 | 2 | 4 | 2 |
| 3 | 3 | 4 | 4 |
| 4 | 4 | 3 | 2 |
| 5 | 3 | 2 | 3 |
| 6 | 5 | 3 | 2 |
| 7 | 3 | 4 | 2 |
| 8 | 4 | 3 | 2 |
| 9 | 5 | 4 | 3 |
| 10 | 4 | 4 | 4 |
| 11 | 5 | 4 | 3 |
| 12 | 4 | 3 | 4 |
| 13 | 5 | 5 | 4 |
| 14 | 3 | 4 | 3 |
| 15 | 4 | 4 | 3 |
| 16 | 5 | 3 | 3 |
| 17 | 4 | 3 | 4 |
| 18 | 5 | 3 | 3 |
| 19 | 4 | 2 | 3 |
| 20 | 4 | 3 | 4 |
| 21 | 4 | 4 | 4 |
| 22 | 4 | 3 | 4 |
| 23 | 5 | 4 | 3 |
| 24 | 4 | 3 | 4 |
| 25 | 4 | 4 | 3 |
| Total | 101 | 85 | 79 |
| Rata-rata | 4.04 | 3.4 | 3.16 |

Sumber: Hasil Penelitian, 2023.

Lampiran 3. Deskripsi Data

Lampiran 3.1 Hasil Analisis Kuat Tarik

| Perlakuan | Ulangan | | | Total | Rata - rata | STDEV | RSD (%) |
|-----------|---------|------|------|-------|----------------|-------|------------|
| | I | II | III | | | | |
| P0C0 | 0.12 | 0.18 | 0.14 | 0.44 | 0.15 | 0.03 | 0.19 |
| P0C1 | 1.54 | 0.03 | 0.04 | 1.60 | 0.53 | 0.87 | 1.63 |
| P0C2 | 0.03 | 0.04 | 0.03 | 0.10 | 0.03 | 0.01 | 0.17 |
| P1C0 | 0.06 | 0.05 | 0.07 | 0.17 | 0.06 | 0.01 | 0.20 |
| P1C1 | 0.03 | 0.05 | 0.03 | 0.11 | 0.04 | 0.01 | 0.30 |
| P1C2 | 0.02 | 0.04 | 0.07 | 0.13 | 0.04 | 0.02 | 0.52 |
| P2C0 | 0.14 | 0.06 | 0.05 | 0.25 | 0.08 | 0.05 | 0.54 |
| P2C1 | 0.05 | 0.03 | 0.04 | 0.13 | 0.04 | 0.01 | 0.22 |
| P2C2 | 0.03 | 0.04 | 0.03 | 0.10 | 0.03 | 0.01 | 0.18 |
| Total | 2.02 | 0.51 | 0.50 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.2 Hasil Analisis Ketebalan Film

| Perlakuan | Ulangan | | | Total | Rata- rata | STDEV | RSD (%) |
|-----------|---------|------|------|-------|---------------|-------|---------|
| | I | II | III | | | | |
| P0C0 | 0.13 | 0.18 | 0.16 | 0.47 | 0.16 | 0.025 | 0.16 |
| P0C1 | 0.15 | 0.20 | 0.21 | 0.56 | 0.19 | 0.032 | 0.17 |
| P0C2 | 0.22 | 0.19 | 0.23 | 0.64 | 0.21 | 0.021 | 0.10 |
| P1C0 | 0.14 | 0.16 | 0.2 | 0.5 | 0.17 | 0.031 | 0.18 |
| P1C1 | 0.11 | 0.14 | 0.16 | 0.41 | 0.14 | 0.025 | 0.18 |
| P1C2 | 0.16 | 0.14 | 0.13 | 0.43 | 0.14 | 0.015 | 0.11 |
| P2C0 | 0.23 | 0.20 | 0.19 | 0.62 | 0.21 | 0.021 | 0.10 |
| P2C1 | 0.13 | 0.09 | 0.13 | 0.35 | 0.12 | 0.023 | 0.20 |
| P2C2 | 0.13 | 0.14 | 0.13 | 0.4 | 0.13 | 0.006 | 0.04 |
| Total | 1.4 | 1.44 | 1.54 | 4.38 | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.3 Hasil Analisis Daya Serap Air

| Perlakuan | Ulangan | | | Total | Rata rata | STDEV | RSD (%) |
|-----------|---------|--------|--------|--------|-----------|-------|------------|
| | I | II | III | | | | |
| P0C0 | 25.71 | 69.56 | 58.92 | 154.19 | 51.40 | 22.87 | 0.45 |
| P0C1 | 36.36 | 40.00 | 40.00 | 116.36 | 38.79 | 2.10 | 0.05 |
| P0C2 | 24.00 | 15.62 | 25.71 | 65.33 | 21.78 | 5.40 | 0.25 |
| P1C0 | 79.41 | 68.57 | 50 | 197.98 | 65.99 | 14.87 | 0.23 |
| P1C1 | 43.24 | 66.66 | 28.81 | 138.71 | 46.24 | 19.10 | 0.41 |
| P1C2 | 63.15 | 64.7 | 73.68 | 201.53 | 67.18 | 5.69 | 0.08 |
| P2C0 | 58.90 | 78.18 | 77.19 | 214.27 | 71.42 | 10.86 | 0.15 |
| P2C1 | 81.48 | 93.75 | 27.08 | 202.31 | 67.44 | 35.48 | 0.53 |
| P2C2 | 64.28 | 78.57 | 57.89 | 200.74 | 66.91 | 10.59 | 0.16 |
| Total | 476.53 | 575.61 | 439.28 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.4 Hasil Analisis Zona Hambat Terhadap Bakteri *Staphylococcus aureus*

| Perlakuan | Ulangan | | Total | Rata-rata | STDEV | RSD (%) |
|-----------|---------|--------|-------|-----------|-------|---------|
| | I | II | | | | |
| P0C0 | 6.60 | 7.45 | 14.05 | 7.03 | 0.60 | 0.09 |
| P0C1 | 10.20 | 8.75 | 18.95 | 9.48 | 1.03 | 0.11 |
| P0C2 | 12.50 | 17.30 | 29.80 | 14.90 | 3.39 | 0.23 |
| P1C0 | 9.50 | 8.40 | 17.90 | 8.95 | 0.78 | 0.09 |
| P1C1 | 9.75 | 9.70 | 19.45 | 9.73 | 0.04 | 0.00 |
| P1C2 | 11.20 | 10.90 | 22.10 | 11.05 | 0.21 | 0.02 |
| P2C0 | 9.95 | 10.85 | 20.80 | 10.40 | 0.64 | 0.06 |
| P2C1 | 13.55 | 9.81 | 23.36 | 11.68 | 2.64 | 0.23 |
| P2C2 | 11.65 | 18.50 | 30.15 | 15.08 | 4.84 | 0.32 |
| Total | 94.90 | 101.66 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.5 hasil Analisis Zona Hambat Terhadap Bakteri *Escherichia coli*

| Perlakuan | Ulangan | | Total | Rata-rata | STDEV | RSD (%) |
|-----------|---------|-------|-------|-----------|-------|---------|
| | I | II | | | | |
| P0C0 | 6.85 | 6.95 | 13.80 | 6.90 | 0.07 | 0.01 |
| P0C1 | 7.75 | 10.80 | 18.55 | 9.28 | 2.16 | 0.23 |
| P0C2 | 9.35 | 10.05 | 19.40 | 9.70 | 0.49 | 0.05 |
| P1C0 | 8.05 | 8.25 | 16.30 | 8.15 | 0.14 | 0.02 |
| P1C1 | 8.25 | 11.05 | 19.30 | 9.65 | 1.98 | 0.21 |
| P1C2 | 10.65 | 9.55 | 20.20 | 10.10 | 0.78 | 0.08 |
| P2C0 | 7.30 | 8.65 | 15.95 | 7.98 | 0.95 | 0.12 |
| P2C1 | 8.75 | 9.40 | 18.15 | 9.07 | 0.46 | 0.05 |
| P2C2 | 9.95 | 11.30 | 21.25 | 10.63 | 0.95 | 0.09 |
| Total | 76.90 | 86.00 | | | | |

Sumber: Hasil penelitian, 2023.

Lampiran 3.6 Hasil Analisis Laju Transmisi Uap Air (LTUA)

| Perlakuan | Ulangan | | | Total | Rata - rata | STDEV | RSD (%) |
|-----------|---------|-------|-------|-------|-------------|-------|---------|
| | I | II | III | | | | |
| P0C0 | 11.63 | 9.95 | 11.63 | 33.20 | 11.07 | 0.97 | 0.09 |
| P0C1 | 11.50 | 10.97 | 10.08 | 32.55 | 10.85 | 0.71 | 0.07 |
| P0C2 | 9.23 | 9.24 | 9.30 | 27.77 | 9.26 | 0.04 | 0.00 |
| P1C0 | 9.24 | 9.69 | 9.08 | 28.01 | 9.34 | 0.32 | 0.03 |
| P1C1 | 9.51 | 9.11 | 9.08 | 27.70 | 9.23 | 0.24 | 0.03 |
| P1C2 | 8.71 | 8.17 | 9.10 | 25.97 | 8.66 | 0.47 | 0.05 |
| P2C0 | 8.18 | 7.91 | 8.28 | 24.37 | 8.12 | 0.19 | 0.02 |
| P2C1 | 6.29 | 6.62 | 6.06 | 18.97 | 6.32 | 0.28 | 0.04 |

| | | | | | | | |
|-------|-------|-------|-------|-------|------|------|------|
| P2C2 | 6.10 | 5.58 | 5.17 | 16.85 | 5.62 | 0.47 | 0.08 |
| Total | 80.37 | 77.25 | 77.77 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.7 Hasil Analisis Uji Warna L* (Kecerahan)

| Perlakuan | Ulangan | | | Total | Rata-rata | STDEV | RSD (%) |
|-----------|---------|--------|--------|--------|-----------|-------|---------|
| | I | II | III | | | | |
| P0C0 | 52.56 | 55.3 | 47.48 | 155.34 | 51.78 | 3.97 | 0.08 |
| P0C1 | 51.31 | 50.61 | 50.14 | 152.06 | 50.69 | 0.59 | 0.01 |
| P0C2 | 45.81 | 53.09 | 49.25 | 148.15 | 49.38 | 3.64 | 0.07 |
| P1C0 | 55.69 | 55.06 | 55.31 | 166.06 | 55.35 | 0.32 | 0.01 |
| P1C1 | 50.33 | 49.04 | 48.72 | 148.09 | 49.36 | 0.85 | 0.02 |
| P1C2 | 49.17 | 49 | 51.79 | 150.27 | 50.09 | 1.47 | 0.03 |
| P2C0 | 50.51 | 55.77 | 55.74 | 162.02 | 54.01 | 3.03 | 0.06 |
| P2C1 | 53.25 | 52.38 | 49.86 | 155.49 | 51.83 | 1.76 | 0.03 |
| P2C2 | 50.9 | 51.18 | 52.65 | 154.73 | 51.58 | 0.94 | 0.02 |
| Total | 459.53 | 471.74 | 460.94 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.8 Hasil Analisis Warna a*

| Perlakuan | Ulangan | | | Total | Rata-rata | STDEV | RSD (%) |
|-----------|---------|--------|--------|--------|-----------|-------|---------|
| | I | II | III | | | | |
| P0C0 | -7.63 | -8.08 | -6.8 | -22.51 | -7.50 | 0.65 | -0.09 |
| P0C1 | -6.66 | -6.15 | -4.61 | -17.42 | -5.81 | 1.07 | -0.18 |
| P0C2 | -4.23 | -6.62 | -4.68 | -15.53 | -5.18 | 1.27 | -0.25 |
| P1C0 | -7.23 | -7.81 | -7.53 | -22.57 | -7.52 | 0.29 | -0.04 |
| P1C1 | -5.33 | -4.77 | -5.33 | -15.43 | -5.14 | 0.32 | -0.06 |
| P1C2 | -4.51 | -4.76 | -5.40 | -14.67 | -4.89 | 0.46 | -0.09 |
| P2C0 | -7.13 | -8.07 | -7.65 | -22.85 | -7.62 | 0.47 | -0.06 |
| P2C1 | -6.82 | -6.6 | -6.57 | -19.99 | -6.66 | 0.14 | -0.02 |
| P2C2 | -5.67 | -5.88 | -6.32 | -17.87 | -5.96 | 0.33 | -0.06 |
| Total | -55.21 | -58.74 | -54.89 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.9 Hasil Analisis Warna b*

| Perlakuan | Ulangan | | | Total | Rata-rata | STDEV | RSD (%) |
|-----------|---------|-------|-------|-------|-----------|-------|---------|
| | I | II | III | | | | |
| P0C0 | 2.79 | 2.91 | 4.43 | 10.13 | 3.38 | 0.91 | 0.27 |
| P0C1 | 11.14 | 14.36 | 19.41 | 44.91 | 14.97 | 4.17 | 0.28 |
| P0C2 | 17.44 | 9.74 | 19.5 | 46.68 | 15.56 | 5.14 | 0.33 |
| P1C0 | 2.79 | 2.76 | 3.04 | 8.59 | 2.86 | 0.15 | 0.05 |
| P1C1 | 17.55 | 18.03 | 16.41 | 51.99 | 17.33 | 0.83 | 0.05 |
| P1C2 | 19.33 | 17.01 | 16.83 | 53.17 | 17.72 | 1.39 | 0.08 |
| P2C0 | 4.27 | 3.32 | 2.92 | 10.51 | 3.50 | 0.69 | 0.20 |

| | | | | | | | |
|-------|--------|-------|--------|-------|-------|------|------|
| P2C1 | 7.79 | 9.54 | 9.82 | 27.15 | 9.05 | 1.10 | 0.12 |
| P2C2 | 17.25 | 10.83 | 9.83 | 37.91 | 12.64 | 4.03 | 0.32 |
| Total | 100.35 | 88.5 | 102.19 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 3.10 Hasil Analisis Total Plate Count

| Sampel | Ulangan | | Total | Rata-rata | STDEV | RSD (%) |
|--------|---------|------|-------|-----------|-------|---------|
| | I | II | | | | |
| K | 18.9 | 22 | 40.9 | 20.45 | 2.19 | 0.11 |
| A | 10.13 | 8 | 18.1 | 9.07 | 1.51 | 0.17 |
| B | 3.5 | 3.1 | 6.6 | 3.3 | 0.28 | 0.09 |
| Total | 32.53 | 33.1 | | | | |

Sumber: Hasil Penelitian, 2023.

Lampiran 4. Analisis Data

Lampiran 4.1 Tabel Analisis Sidik Ragam Kuat Tarik

| Source | Type III Sum of square | df | Mean Square | F | Sig. |
|-------------------|------------------------|----|-------------|-------|-------|
| Corrected Model | .629 ^a | 8 | 0.079 | 0.93 | 0.516 |
| Pektin | 0.212 | 2 | 0.106 | 1.252 | 0.31 |
| Kurkumin | 0.131 | 2 | 0.065 | 0.774 | 0.476 |
| Pektin * Kurkumin | 0.287 | 4 | 0.072 | 0.848 | 0.513 |
| Error | 1.522 | 18 | 0.085 | | |
| Total | 2.49 | 27 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.2 Hasil Uji Lanjut Duncan Kuat Tarik

| Perlakuan | Rata-rata | Duncan + Rata-rata | Notasi |
|-----------|-----------|--------------------|--------|
| P2C2 | 0.032 | 0.529 | a |
| P0C2 | 0.033 | 0.558 | a |
| P1C1 | 0.037 | 0.578 | a |
| P2C1 | 0.043 | 0.593 | a |
| P1C2 | 0.043 | 0.602 | a |
| P1C0 | 0.057 | 0.621 | a |
| P2C0 | 0.084 | 0.651 | a |
| P0C0 | 0.146 | 0.716 | a |
| P0C1 | 0.533 | | b |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.3 Hasil Analisis Sidik Ragam Ketebalan Film

| Source | Type III Sum of Square | df | Mean Square | F | Sig. |
|-----------------|------------------------|----|-------------|---------|-------|
| Corrected model | .037 ^a | 8 | 0.005 | 4.25 | 0.005 |
| Intercept | 0.691 | 1 | 0.691 | 628.364 | <.001 |
| Pektin | 0.009 | 2 | 0.005 | 4.212 | 0.032 |
| Kurkumin | 0.008 | 2 | 0.004 | 3.545 | 0.05 |
| Interaksi | 0.02 | 4 | 0.005 | 4.621 | 0.01 |
| Galat | 0.02 | 18 | 0.001 | | |
| Total | 0.748 | 27 | | | |

Sumber : Hasil analisis Data Penelitian, 2023.

Lampiran 4.4 Hasil Uji Lanjut Duncan Ketebalan Film

| Perlakuan | Rata-rata | DMRT + rata-rata | Notasi |
|-----------|-----------|------------------|--------|
|-----------|-----------|------------------|--------|

| | | | |
|------|------|------|----|
| P2C1 | 0.12 | 0.17 | A |
| P2C2 | 0.13 | 0.19 | A |
| P1C1 | 0.14 | 0.20 | A |
| P1C2 | 0.14 | 0.20 | A |
| P0C0 | 0.16 | 0.22 | A |
| P1C0 | 0.17 | 0.23 | Ab |
| P0C1 | 0.19 | 0.25 | B |
| P2C0 | 0.21 | 0.27 | B |
| P0C2 | 0.21 | | B |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.5 Hasil Analisis Sidik Ragam Daya Serap Air

| Source | Type III Sum of square | df | Mean square | F | Sig. |
|-------------------|------------------------|----|-------------|-------|-------|
| Corrected model | 6874.15 | 8 | 859.268 | 2.903 | 0.029 |
| Pektin | 4681.73 | 2 | 2340.87 | 7.907 | 0.003 |
| Kurkumin | 806.218 | 2 | 403.109 | 1.362 | 0.281 |
| Pektin * Kurkumin | 1386.2 | 4 | 346.549 | 1.171 | 0.357 |
| Error | 5328.56 | 18 | 296.031 | | |
| Total | 94585.4 | 27 | | | |

Sumber: Hasil Analisis data Penelitian, 2023.

Lampiran 4.6 Hasil Uji Lanjut Duncan Daya Serap Air

| Perlakuan | Rata-rata | Duncan + Rata-rata | Notasi |
|-----------|-----------|--------------------|--------|
| P0C2 | 21.78 | 51.081 | a |
| P0C1 | 38.79 | 69.780 | a |
| P1C1 | 46.24 | 78.124 | a |
| P0C0 | 51.40 | 98.476 | b |
| P1C0 | 65.99 | 98.973 | b |
| P2C2 | 66.91 | 100.191 | b |
| P1C2 | 67.18 | 100.653 | b |
| P2C1 | 67.44 | 101.112 | b |
| P2C0 | 71.42 | | b |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.7 Hasil Analisis Sidik Ragam Zona Hambat Bakteri Terhadap *Staphylococcus aureus*

| Source | Type III Sum of square | df | Mean Square | F | Sig. |
|-----------------|------------------------|----|-------------|---------|-------|
| Corrected model | 86.840 ^a | 8 | 10.855 | 2.212 | 0.129 |
| Intercept | 2203.37 | 1 | 2203.37 | 448.917 | <.001 |
| Pektin | 14.271 | 2 | 7.136 | 1.454 | 0.284 |
| Kurkumin | 61.969 | 2 | 30.984 | 6.313 | 0.019 |

| | | | | | |
|----------------------|---------|----|-------|------|-------|
| Pektin * Kurkumin | 10.601 | 4 | 2.65 | 0.54 | 0.711 |
| Galat | 44.174 | 9 | 4.908 | | |
| Total | 2334.39 | 18 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.8 Hasil Uji Lanjut Duncan Zona Hambat Bakteri Terhadap *Staphylococcus aureus*

| Sampel | Rata rata | DMRT + RT | Notasi |
|--------|-----------|-----------|--------|
| P0C0 | 7 | 12.013 | a |
| P1C0 | 9 | 14.232 | a |
| P0C1 | 9.5 | 14.842 | a |
| P1C1 | 9.7 | 15.836 | a |
| P2C0 | 10.4 | 15.883 | a |
| P1C2 | 11.1 | 16.614 | a |
| P2C1 | 11.7 | 17.214 | a |
| P0C2 | 14.9 | 20.414 | b |
| P2C2 | 15.1 | | b |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.9 Hasil Analisis Sidik Ragam Zona Hambat Bakteri Terhadap *Escherichia coli*.

| Source | Type III Sum Of Square | df | Mean Square | F | Sig. |
|----------------------|------------------------|----|-------------|----------|-------|
| Corrected model | 13.411 ^a | 8 | 1.676 | 1.246 | 0.372 |
| Intercept | 1566.134 | 1 | 1566.134 | 1164.412 | <.001 |
| Pektin | 2.271 | 2 | 1.136 | 0.844 | 0.461 |
| Kurkumin | 7.338 | 2 | 3.669 | 2.728 | 0.119 |
| Pektin * Kurkumin | 3.802 | 4 | 0.951 | 0.707 | 0.607 |
| Galat | 12.105 | 9 | 1.345 | | |
| Total | 1591.65 | 18 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.10 Hasil Uji Lanjut Duncan Zona Hambat Bakteri Terhadap *Escherichia coli*.

| Sampel | Rata rata | Duncan + Rata-rata | Notasi |
|--------|-----------|--------------------|--------|
| P0C0 | 6.9 | 9.52 | a |
| P2C0 | 8 | 10.74 | a |
| P1C0 | 8.2 | 11.00 | a |
| P2C1 | 9.1 | 11.95 | a |
| P0C1 | 9.3 | 12.17 | a |
| P0C2 | 9.7 | 12.59 | b |
| P1C1 | 10 | 12.89 | b |

| | | | |
|------|------|-------|---|
| P1C2 | 10.1 | 12.99 | b |
| P2C2 | 10.6 | | b |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.11 Hasil Analisis Sidik Ragam Laju Transmisi uap Air (LTUA)

| Source | Type III Sum of Square | df | Mean Square | F | Sig. |
|-------------------|------------------------|----|-------------|---------|-------|
| Corrected Model | 80.176 ^a | 8 | 10.022 | 41.643 | 0.000 |
| Pektin | 63.481 | 2 | 31.741 | 131.886 | 0.000 |
| Kurkumin | 12.577 | 2 | 6.289 | 26.130 | 0.000 |
| Pektin * Kurkumin | 4.118 | 4 | 1.030 | 4.278 | 0.013 |
| Galat | 4.332 | 18 | 0.241 | | |
| Total | 2137.022 | 27 | | | |
| Corrected Total | 84.508 | 26 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.12 Hasil Uji Lanjut Duncan Laju Transmisi Uap Air (LTUA)

| Perlakuan | Rata-rata | Duncan + Rata-rata | Notasi |
|-----------|-----------|--------------------|--------|
| P2C2 | 5.62 | 6.45 | a |
| P2C1 | 6.32 | 7.21 | a |
| P2C0 | 8.12 | 9.03 | b |
| P1C2 | 8.66 | 9.58 | bc |
| P1C1 | 9.23 | 10.17 | c |
| P0C2 | 9.26 | 10.21 | c |
| P1C0 | 9.34 | 10.29 | c |
| P0C1 | 10.85 | 11.81 | d |
| P0C0 | 11.07 | | d |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.13 Hasil Analisis Sidik Ragam Uji Warna L (Kecerahan)

| Source | Type III Sum of Square | df | Mean square | F | Sig. |
|-------------------|------------------------|----|-------------|---------|-------|
| Corrected model | 98.952 ^a | 8 | 12.369 | 2.446 | 0.055 |
| Intercept | 71787 | 1 | 71787 | 14197.4 | <.001 |
| Pektin | 15.496 | 2 | 7.748 | 1.532 | 0.243 |
| Kurkumin | 62.748 | 2 | 31.374 | 6.205 | 0.009 |
| Pektin * Kurkumin | 20.708 | 4 | 5.177 | 1.024 | 0.422 |
| Galat | 91.014 | 18 | 5.056 | | |
| Total | 71977 | 27 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.14 Hasil uji Lanjut Duncan terhadap Warna L (Kecerahan) Edible film

| Perlakuan | Rata-rata | Duncan + RT | Simbol |
|-----------|-----------|-------------|--------|
| P1C1 | 49.363 | 53.193 | A |
| P0C2 | 49.383 | 53.434 | A |
| P1C2 | 50.090 | 54.257 | A |
| P0C1 | 50.687 | 54.932 | A |
| P2C2 | 51.577 | 55.887 | A |
| P0C0 | 51.780 | 56.129 | A |
| P2C1 | 51.830 | 56.205 | A |
| P2C0 | 54.007 | 58.408 | B |
| P1C0 | 55.353 | | B |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.15 Hasil Analisis Sidik Ragam Warna a* Edible film

| Source | Type III Sum of Square | df | Mean Square | F | Sig. |
|----------------------|------------------------|----|-------------|---------|-------|
| Perlakuan | 29.219 ^a | 8 | 3.652 | 8.378 | <.001 |
| Intercept | 1055.81 | 1 | 1055.81 | 2421.92 | <.001 |
| Pektin | 3.703 | 2 | 1.852 | 4.247 | 0.031 |
| Kurkumin | 23.884 | 2 | 11.942 | 27.394 | <.001 |
| Pektin * Kurkumin | 1.631 | 4 | 0.408 | 0.936 | 0.466 |
| Galat | 7.847 | 18 | 0.436 | | |
| Total | 1092.88 | 27 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.16 Hasil Uji Lanjut Duncan Terhadap Warna a* Edible film

| Perlakuan | Rata-rata | Duncan + RT | Simbol |
|-----------|-----------|-------------|--------|
| P0C0 | -4.890 | -3.765 | a |
| P2C2 | -5.143 | -3.954 | b |
| P1C2 | -5.177 | -3.953 | b |
| P0C2 | -5.807 | -4.560 | b |
| P1C0 | -5.957 | -4.691 | b |
| P2C0 | -6.663 | -5.386 | c |
| P1C1 | -7.503 | -6.219 | c |
| P0C1 | -7.523 | -6.231 | c |
| P2C1 | -7.617 | | d |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.17 Hasil Analisis Sidik Ragam Warna b^* Edible film

| Source | Type III sum of square | df | Mean square | F | Sig. |
|---------------------|------------------------|----|-------------|--------|-------|
| Corrected model | 925.169 ^a | 8 | 115.646 | 15.953 | <.001 |
| Pektin | 84.676 | 2 | 42.338 | 5.84 | 0.011 |
| Kurkumin | 776.206 | 2 | 388.103 | 53.538 | <.001 |
| Pektin* Kurkumin | 64.287 | 4 | 16.072 | 2.217 | 0.108 |
| Galat | 130.483 | 18 | 7.249 | | |
| Total | 4192.848 | 27 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.18 Hasil Uji Lanjut Duncan pada Warna b^* Edible film

| Perlakuan | RT | Duncan + RT | Simbol |
|-----------|-------|-------------|--------|
| P1C0 | 2.86 | 7.45 | A |
| P0C0 | 3.38 | 8.23 | A |
| P2C0 | 3.50 | 8.49 | A |
| P2C1 | 9.05 | 14.13 | B |
| P2C2 | 12.64 | 17.80 | Bc |
| P0C1 | 14.97 | 20.18 | Bc |
| P0C2 | 15.56 | 20.80 | Bc |
| P1C1 | 17.33 | 22.60 | C |
| P1C2 | 17.72 | | C |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.19 Hasil Analisis Sidik Ragam Anova Total Plate Count (TPC)

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|-------|
| Between Groups | 304.651 | 2 | 152.325 | 63.882 | 0.003 |
| Within Groups | 7.153 | 3 | 2.384 | | |
| Total | 311.804 | 5 | | | |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.20 Hasil Uji Lanjut Duncan Total Plate Count (TPC)

| Duncan ^a | | | | |
|--------------------------------------|---|-------------------------|--------|---------|
| Sampel | N | Subset for alpha = 0.05 | | |
| | | 1 | 2 | 3 |
| B (Edible film dengan kurkumin 1%) | 2 | 3.3000 | | |
| A (Edible film dengan kurkumin 0,5%) | 2 | | 9.0650 | |
| K (Tanpa edible film) | 2 | | | 20.4500 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Sumber: Hasil Analisis Data Penelitian, 2023.

Lampiran 4.21 Hasil Analisis Sidik Ragam Uji Hedonik Warna

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|-----------------|-------------------------|----|-------------|----------|-------|
| Corrected Model | 20.987 ^a | 26 | 0.807 | 1.549 | 0.094 |
| Intercept | 768.000 | 1 | 768.000 | 1473.774 | 0.000 |
| Perlakuan | 6.320 | 2 | 3.160 | 6.064 | 0.004 |
| Panelis | 14.667 | 24 | 0.611 | 1.173 | 0.312 |
| Error | 25.013 | 48 | 0.521 | | |
| Total | 814.000 | 75 | | | |
| Corrected Total | 46.000 | 74 | | | |

Sumber: Hasil Analisis data Penelitian, 2023.

Lampiran 4.22 Hasil Uji lanjut Duncan Organoleptik Warna

| Duncan ^{a,b} | | | |
|----------------------------------|----|--------|-------|
| Perlakuan | N | Subset | |
| | | 1 | 2 |
| Edible film dengan kurkumin 1% | 25 | 2.92 | |
| Edible film dengan kurkumin 0.5% | 25 | 3.08 | |
| Tanpa Edible | 25 | | 3.60 |
| Sig. | | 0.437 | 1.000 |

Sumber: Hasil analisis data penelitian, 2023.

Lampiran 4.23 Hasil Analisis Sidik Ragam Uji Organoleptik Tekstur

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|-----------------|-------------------------|----|-------------|----------|-------|
| Corrected Model | 32.613 ^a | 26 | 1.254 | 3.350 | 0.000 |
| Intercept | 894.413 | 1 | 894.413 | 2388.641 | 0.000 |
| Perlakuan | 18.027 | 2 | 9.013 | 24.071 | 0.000 |
| Panelis | 14.587 | 24 | 0.608 | 1.623 | 0.076 |
| Error | 17.973 | 48 | 0.374 | | |
| Total | 945.000 | 75 | | | |
| Corrected Total | 50.587 | 74 | | | |

Sumber: Hasil analisis data penelitian, 2023.

Lampiran 4.24 Hasil Uji lanjut Duncan Organoleptik tekstur

| Duncan ^{a,b} | | | | |
|-----------------------|----|--------|-------|-------|
| Perlakuan | N | Subset | | |
| | | 1 | 2 | 3 |
| Tanpa Edible | 25 | 2.84 | | |
| Kemasan Edible film 1 | 25 | | 3.48 | |
| Kemasan edible film 2 | 25 | | | 4.04 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Sumber: Hasil Analisis data Penelitian, 2023.

Lampiran 4.25 Hasil Analisis Sidik ragam Organoleptik Aroma

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|-----------------|-------------------------|----|-------------|----------|-------|
| Corrected Model | 28.640 ^a | 26 | 1.102 | 2.245 | 0.008 |
| Intercept | 873.813 | 1 | 873.813 | 1781.273 | 0.000 |
| Perlakuan | 15.787 | 2 | 7.893 | 16.091 | 0.000 |
| Panelis | 12.853 | 24 | 0.536 | 1.092 | 0.387 |
| Error | 23.547 | 48 | 0.491 | | |
| Total | 926.000 | 75 | | | |
| Corrected Total | 52.187 | 74 | | | |

Sumber: Hasil Analisis data penelitian, 2023.

Lampiran 4.26 Hasil uji lanjut Duncan organoleptic aroma

| Duncan ^{a,b} | | | | |
|-----------------------|----|--------|-------|-------|
| Perlakuan | N | Subset | | |
| | | 1 | 2 | 3 |
| Tanpa edible film | 25 | 2.88 | | |
| Kemasan Edible film 1 | 25 | | 3.36 | |
| Kemasan Edible film 2 | 25 | | | 4.00 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Sumber: Hasil analisis data penelitian, 2023.

Lampiran 4.27 Hasil Analisis Sidik Ragam Organoleptik rasa

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|-----------------|-------------------------|----|-------------|----------|-------|
| Corrected Model | 31.040 ^a | 26 | 1.194 | 2.243 | 0.008 |
| Intercept | 894.413 | 1 | 894.413 | 1680.526 | 0.000 |
| Perlakuan | 15.787 | 2 | 7.893 | 14.831 | 0.000 |
| Panelis | 15.253 | 24 | 0.636 | 1.194 | 0.294 |
| Error | 25.547 | 48 | 0.532 | | |
| Total | 951.000 | 75 | | | |
| Corrected Total | 56.587 | 74 | | | |

Sumber: Hasil analisis data penelitian, 2023.

Lampiran 4.28 Hasil Uji lanjut Duncan Organoleptik Rasa

| Duncan ^{a,b} | | | | |
|-----------------------|----|--------|-------|-------|
| Perlakuan | N | Subset | | |
| | | 1 | 2 | 3 |
| Tanpa Edible | 25 | 2.92 | | |
| Kemasan Edible film 1 | 25 | | 3.40 | |
| Kemasan edible film 2 | 25 | | | 4.04 |
| Sig. | | 1.000 | 1.000 | 1.000 |

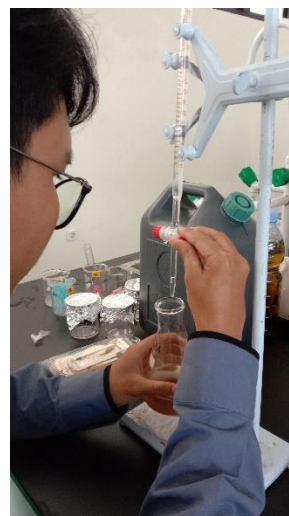
Sumber: Hasil analisis data penelitian, 2023.

Lampiran 5. Dokumentasi Penelitian

Lampiran 5.1 Preparasi Kulit Buah dengan



Lampiran 5.2 Proses Ekstraksi Pektin



(Uji kadar metoksil)

Lampiran 5.3 Pembuatan Edible film



(Penimbangan Bahan)



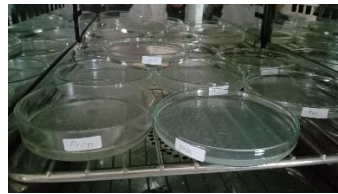
(Pencampuran bahan)



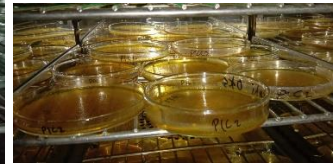
(Menghomogenkan dan Memanaskan)



(Menuang larutan edible pada cetakan)



(Pengeringan edible film)

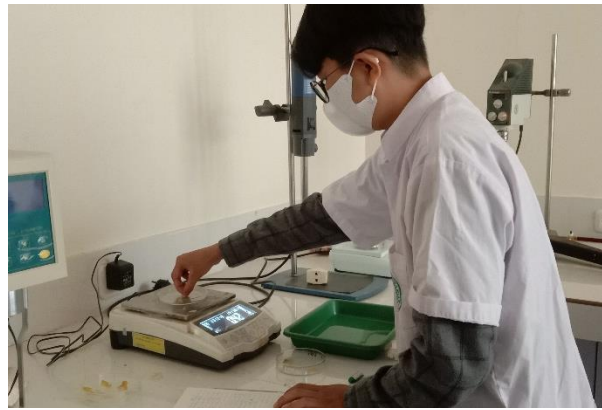


(Edible film dengan kurkumin dan tanpa kurkumin)

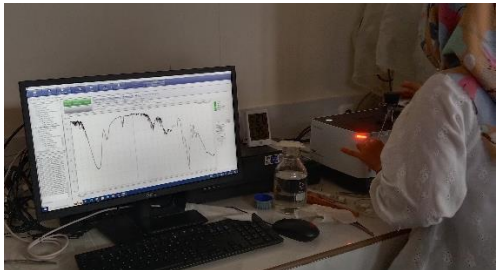
Lampiran 5.4 Karakterisasi Edible film



(Uji Ketebalan Film)



(Uji Daya serap air)



(Uji FTIR)

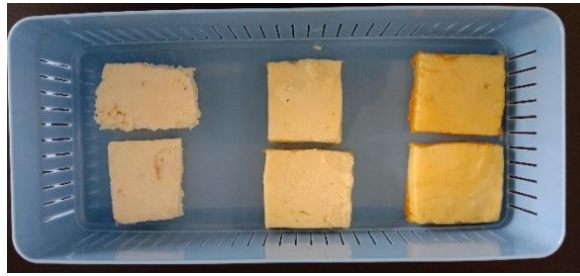


(Uji LTUA)

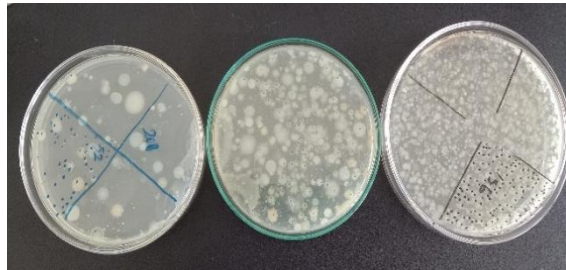


(Uji Diameter zona hambat bakteri)

Lampiran 5.5 Aplikasi edible film pada Dangke



(Aplikasi edible film)

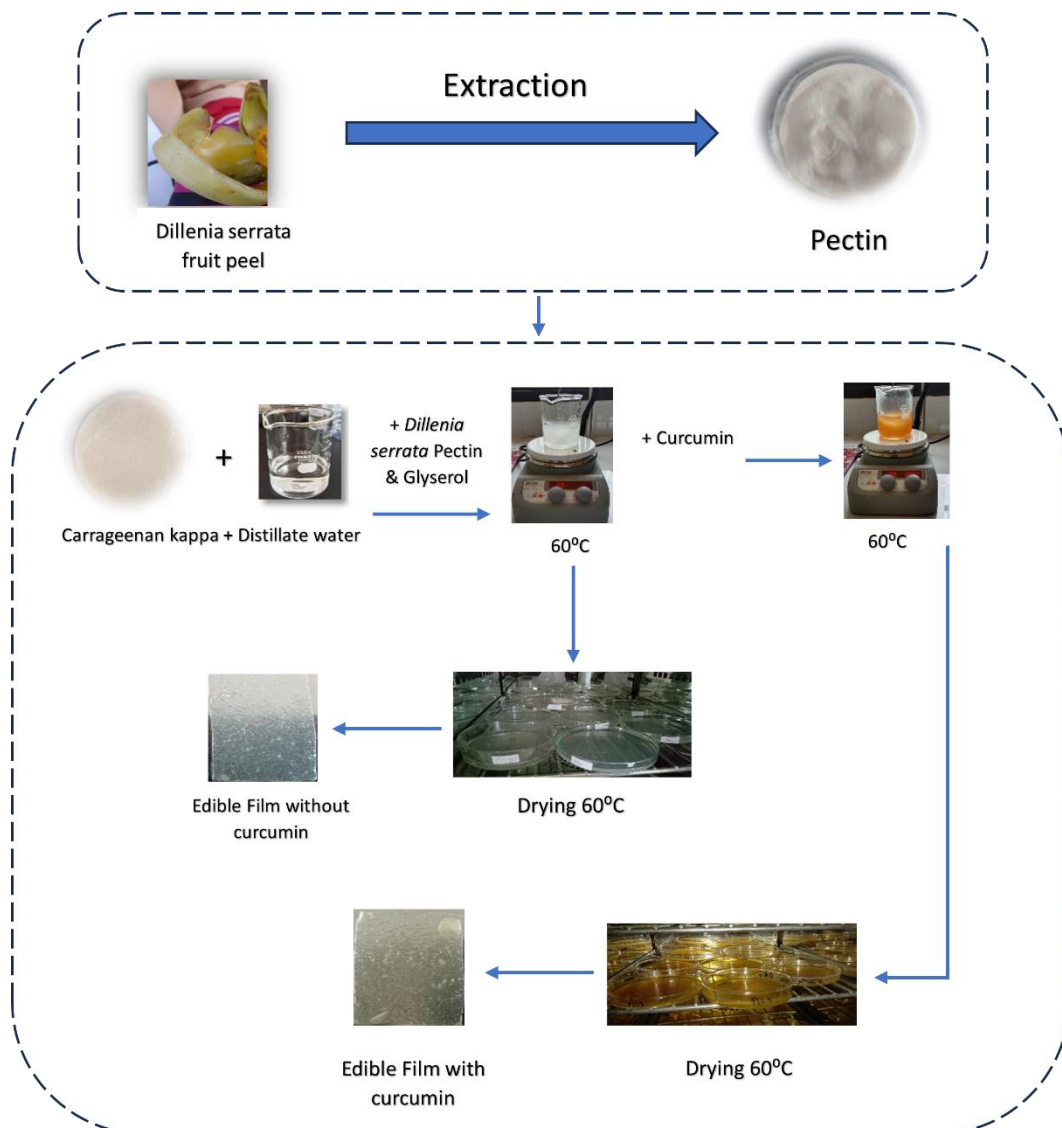


(Uji Total plate count)



(Uji Organoleptik)

Lampiran 6. Kritikal Abstrak



Lampiran 5.8 Riwayat Hidup

CURRICULUM VITAE



A. Data Pribadi

1. Nama : Reza Arianto Sultan
2. Tempat, tgl. Lahir : Sinjai, 10 Maret 1997
3. Alamat : Perumahan Bumi Permata Sinjai Blok A No. 9,
Kab. Sinjai
4. Kewarganegaraan : Warga Negara Indonesia

B. Riwayat Pendidikan

1. Tamat SD Tahun 2008 di SDN 13 Sereng
2. Tamat SMP Tahun 2011 di SMPN 3 Bulupoddo
3. Tamat SMK Tahun 2014 di SMKN 2 Sinjai
4. Sarjana (S1) Tahun 2021 di Universitas Negeri Makassar

C. Riwayat Organisasi

1. Anggota UKM PRAMUKA UNM tahun 2016
2. Pengurus Himpunan Mahasiswa PTP FT UNM Periode 2016/2017

D. Karya Ilmiah yang Telah Dipublikasikan

1. Sultan, R. A., Lahming, L., & Sukainah, A. (2022). Karakteristik Minuman Probiotik Kombinasi Sari Buah Nenas (*Ananas comosus* L.) dan Pepaya (*carica papaya* L.). *Jurnal Pendidikan Teknologi Pertanian*, 8(1), 37. <https://doi.org/10.26858/jptp.v8i1.21344>
2. R. A. Sultan, A. N. F. Rahman, A. Dirpan, and A. Syarifuddin, (2023) "Physical, Mechanical Barrier, Antibacterial Properties, and Functional Group of Carrageenan-Based Edible Film as Influenced by Pectin from *Dillenia Serrata* Fruit Peel and Curcumin," *Current Research in Nutrition and Food Science Journal*, vol. 11, no. 3, pp. 1308–1321, Dec, <https://dx.doi.org/10.12944/CRNFSJ.11.3.32>