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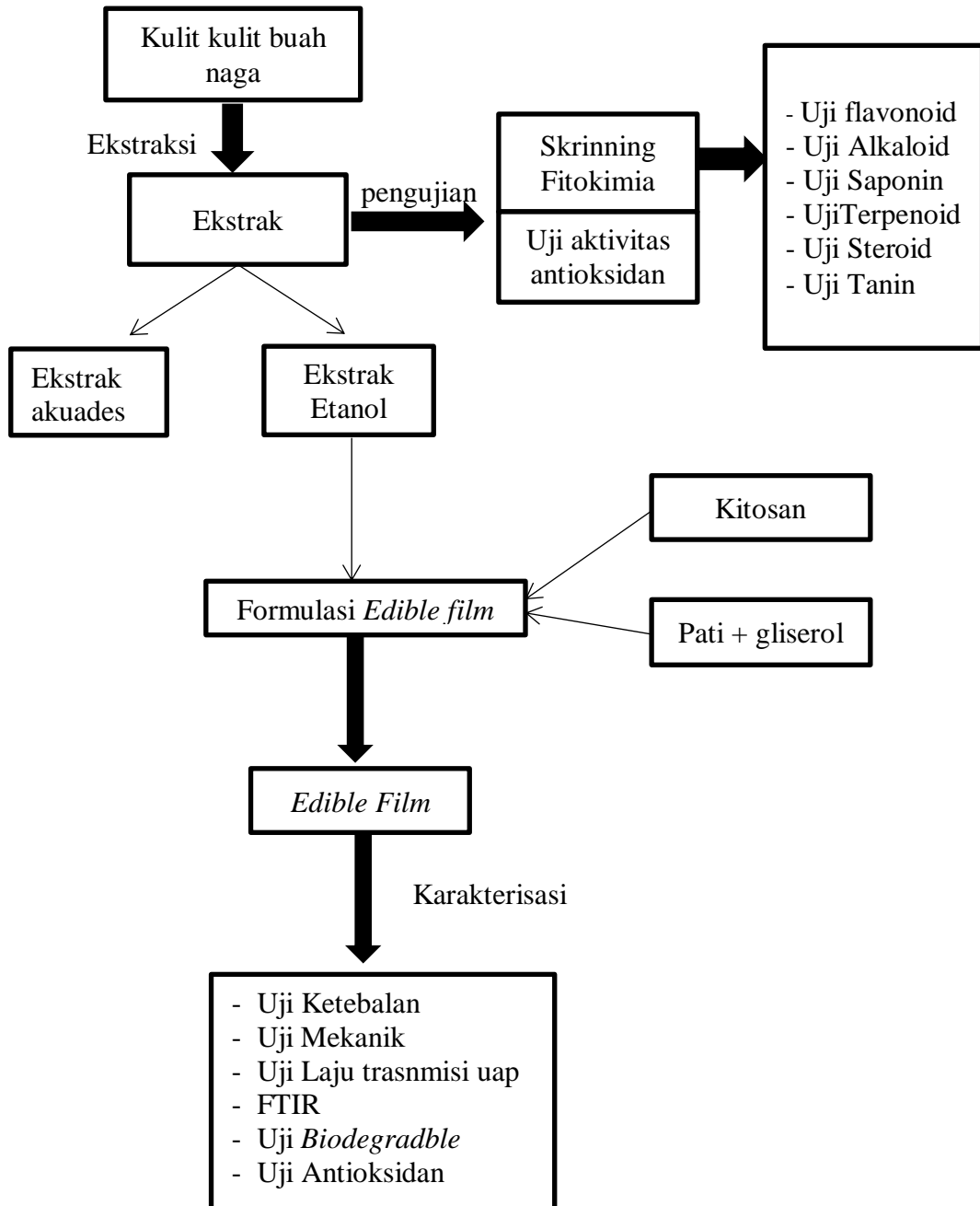
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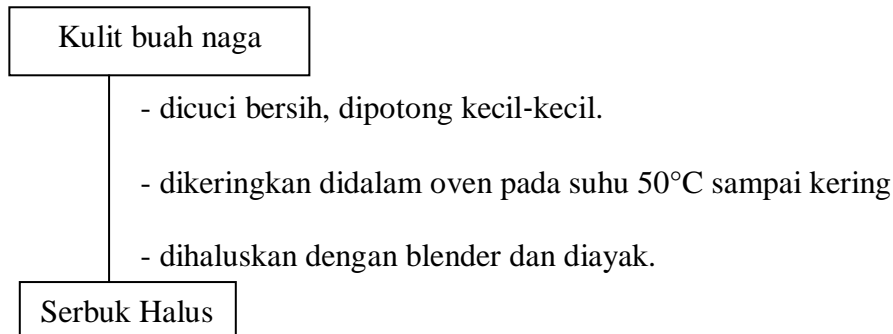
LAMPIRAN

Lampiran 1. Skema Umum Penelitian

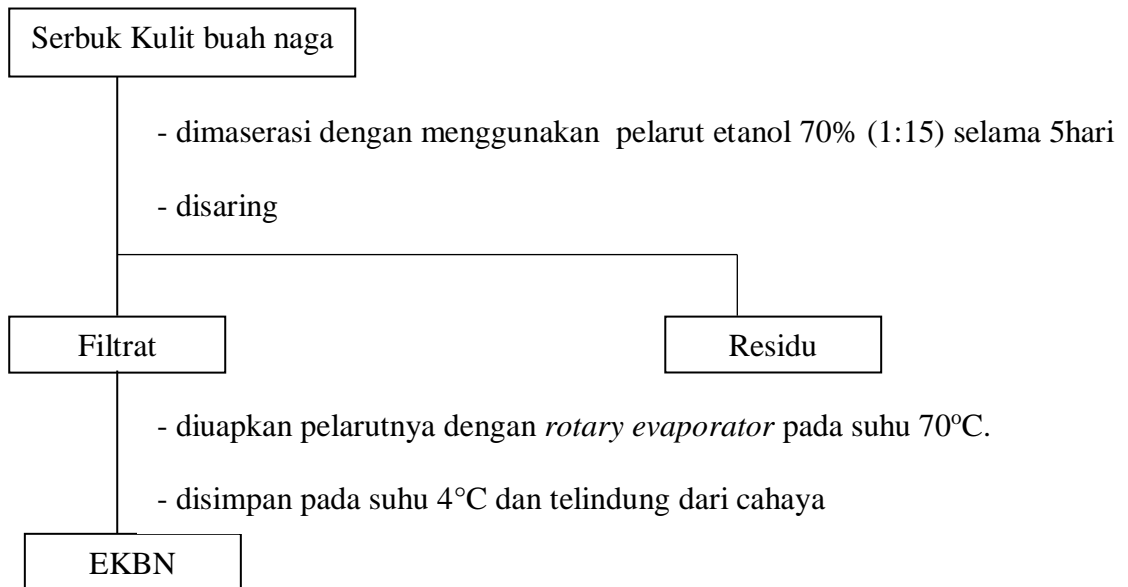


Lampiran 2. Skema Kerja

1. Preparasi Kulit Buah Naga



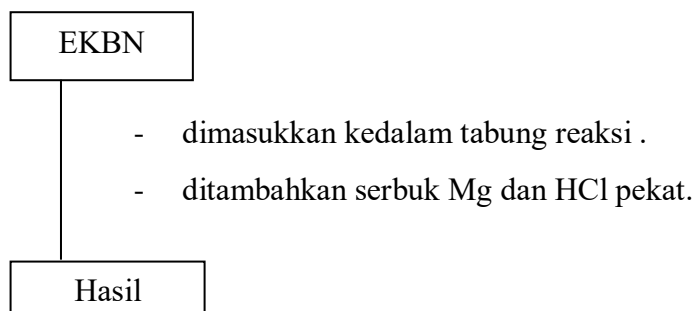
2. Ekstraksi Kulit Buah Naga



Catatan: diulangi prosedur yang sama untuk pelarut akuades

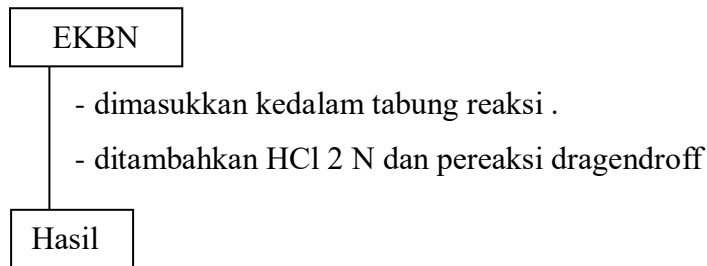
3. Analisis Fitokimia

- Uji flavonoid



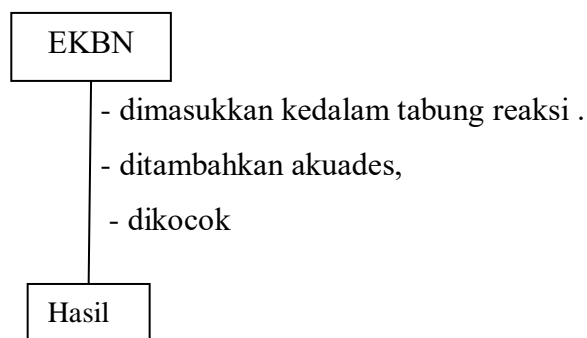
Catatan: Hasil (+) menunjukkan adanya warna merah orange.

- **Uji Alkaloid**



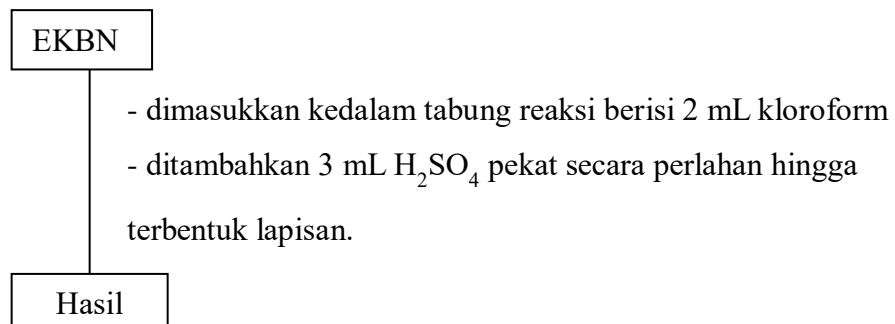
Catatan: Hasil (+) menunjukkan adanya warna merah orange.

- **Uji Saponin**



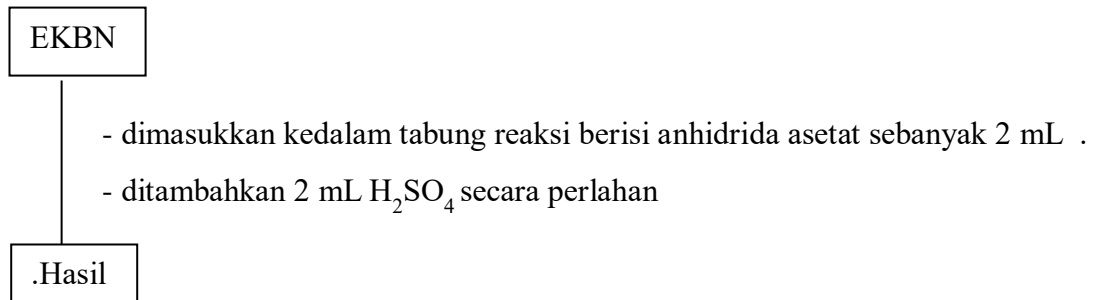
Catatan: Hasil (+) menunjukkan adanya busa yang stabil.

- **Uji Terpenoid**



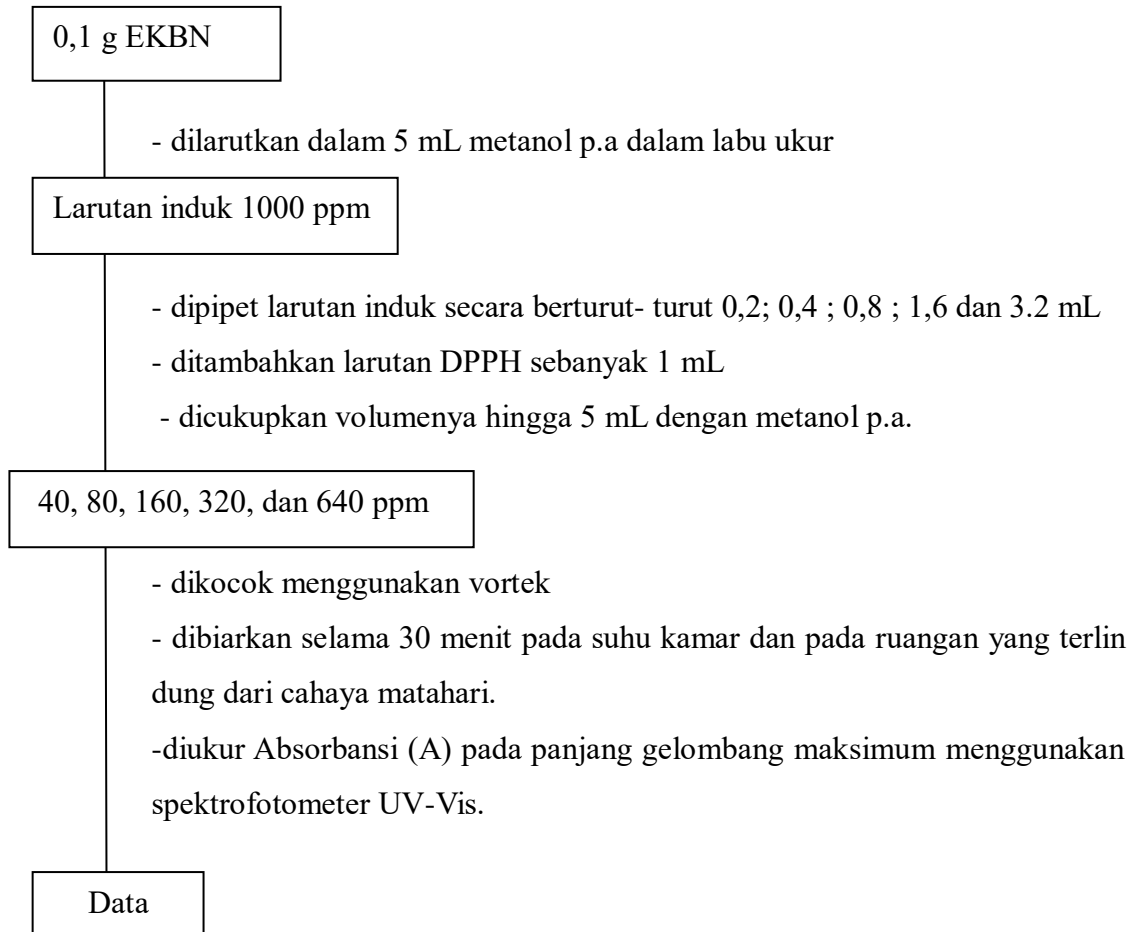
Catatan: Hasil (+) menunjukkan terbentuknya warna merah pada lapisan antar muka (interface).

- **Uji Steroid**



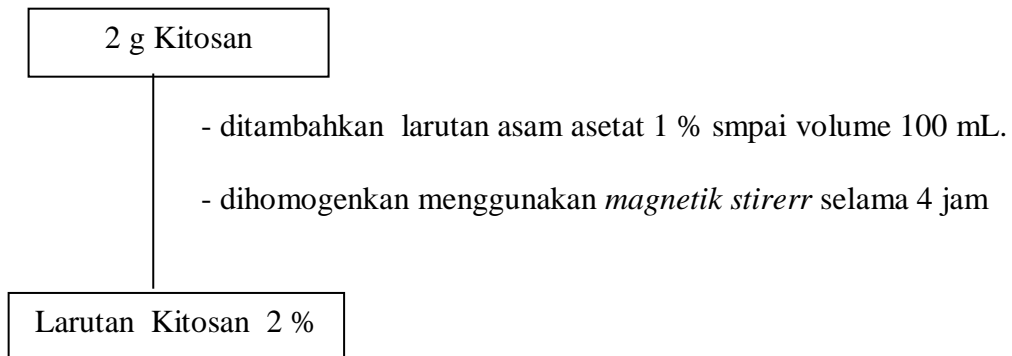
Catatan: Hasil (+) menunjukkan adanya perubahan warna dari ungu menjadi biru atau hijau

4. Uji Aktivitas Antioksidan dengan reagen DPPH Untuk EKBN

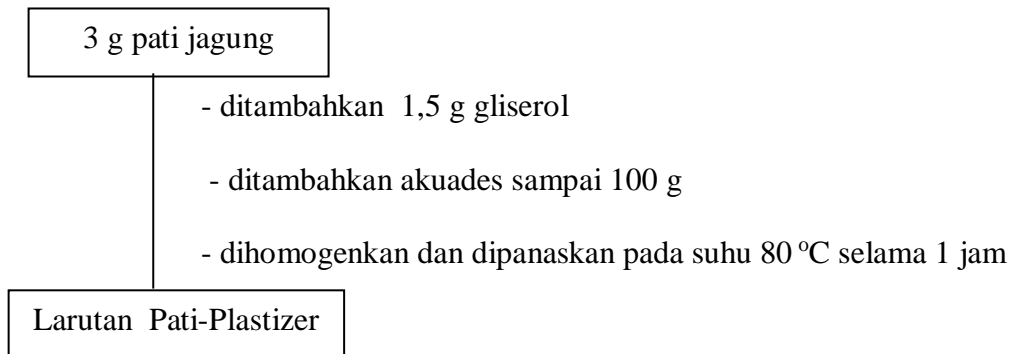


5. Pembuatan *Edible film*

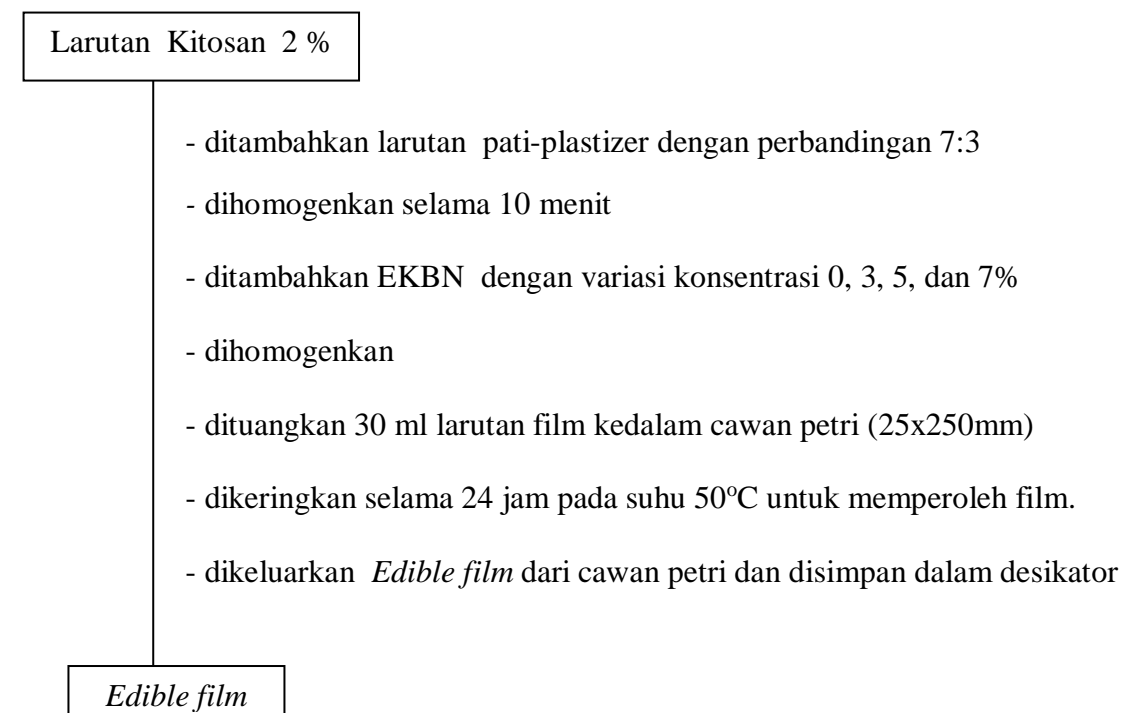
- Pembuatan Kitosan 2%



- Pembuatan Larutan Pati-Plastizer

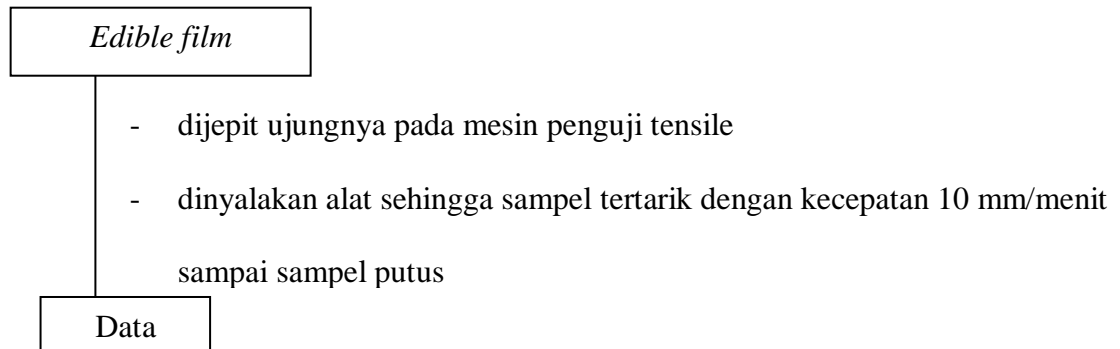


- Pembuatan *Edible film*

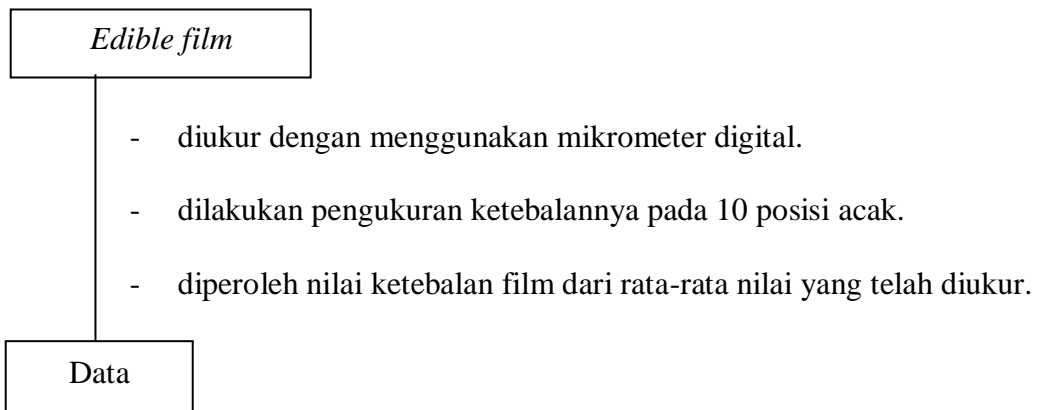


6. Karakterisasi *Edible film*

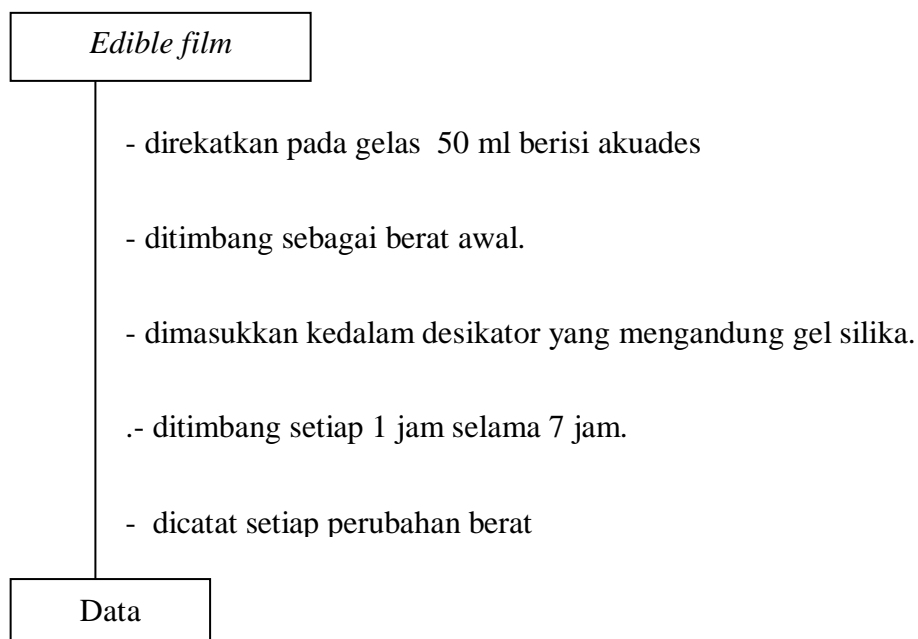
- Uji Mekanik (Kekuatan Tarik Dan Elongasi)



- Uji Ketebalan



- Uji Transmisi Uap Air



7. Uji Aktifitas Antioksidan *Edible film*

Edible film

- ditimbang sebanyak 0,25 g dalam gelas kimia
- dilarutkan dalam 50 mL akuades dalam labu ukur
- dipipet sebanyak 3,2 mL
- ditambahkan larutan DPPH sebanyak 1 mL
- dicukupkan volumenya hingga 5 mL dengan metanol p.a.
- dikocok menggunakan vorteks
- dibiarkan selama 30 menit pada suhu kamar dan pada ruangan yang terlindung dari cahaya matahari.
- diukur absorbansi pada panjang gelombang 516 nm menggunakan spektrofotometer UV-Vis.

Data

8. FTIR

Edible film

- diukur menggunakan alat *Fourier transform infrared spectroscopy* FTIR *Spectrometers* SHIMADZU.
- dianalisis pada daerah spektra 4000-500 cm^{-1} data yang diperoleh dianalisis menggunakan software Omnic 8.1.

Spektrum FTIR

9. Uji Biodegradable

Edible film

- dipotong dengan ukuran 3 x 3 cm
- dikubur dalam tanah kedalaman 2 cm
- diamati secara visual proses degradasi selama 10 minggu

Data

Lampiran 3. Perhitungan Rendemen Ekstrak Kulit Buah Naga

$$\text{Rendamen (\%)} = \frac{\text{berat ekstrak (g)}}{\text{berat simplisa (g)}} \times 100 \%$$

1. Perhitungan rendamen ekstrak akuades kulit buah naga

$$\begin{aligned} \text{Rendamen (\%)} &= \frac{6,54 \text{ gram}}{66,67 \text{ gram}} \times 100 \% \\ &= 9,81 \% \end{aligned}$$

2. Perhitungan rendamen ekstrak etanol kulit buah naga

$$\begin{aligned} \text{Rendamen (\%)} &= \frac{6,80 \text{ gram}}{66,67 \text{ gram}} \times 100 \% \\ &= 11,69 \% \end{aligned}$$

Lampiran 4. Data Analisis Antioksidan

1. Asam Askorbat

| [Ekstrak] ppm | Simplo | | Duplo | |
|------------------|----------|---------------|----------|----------------|
| | Abs (nm) | %Inhibisi (%) | Abs (nm) | % Inhibisi (%) |
| kontrol | 1,037 | - | 1,037 | - |
| 0,25 | 1,035 | 0,193 | 1,014 | 2,218 |
| 0,5 | 0,916 | 11,668 | 0,889 | 14,272 |
| 1 | 0,849 | 18,129 | 0,799 | 22,951 |
| 2 | 0,537 | 48,216 | 0,62 | 40,212 |
| 4 | 0,23 | 77,820 | 0,203 | 80,424 |

Contoh perhitungan % inhibisi (data simplo):

$$\begin{aligned}\% \text{Inhibisi} &= \frac{\text{absorbansi kontrol} - \text{absorbansi sampel}}{\text{absorbansi kontrol}} \times 100\% \\ &= \frac{1,037 - 1,035}{1,037} \times 100\% \\ &= 0,193\%\end{aligned}$$

Contoh Perhitungan IC₅₀ (data simplo):

Persamaan garis hasil plot antara % inhibisi vs konsentrasi

$$y = 20,418x - 0,442$$

$$IC_{50} = \frac{y - b}{a}$$

$$\begin{aligned}IC_{50} &= \frac{50 - (-0,442)}{20,418} \\ &= 2,47 \text{ ppm}\end{aligned}$$

Keterangan:

$$y = 50$$

$$x = IC_{50}$$

2. Ekstrak Akudes Kulit Buah Naga

| [Ekstrak] ppm | Simplo | | Duplo | |
|------------------|----------|---------------|----------|----------------|
| | Abs (nm) | %Inhibisi (%) | Abs (nm) | % Inhibisi (%) |
| kontrol | 0,957 | - | 0,913 | - |
| 40 | 0,916 | 4,284 | 0,876 | 4,053 |
| 80 | 0,905 | 5,434 | 0,868 | 4,929 |
| 160 | 0,87 | 9,091 | 0,787 | 13,801 |
| 320 | 0,797 | 16,719 | 0,75 | 17,853 |
| 640 | 0,537 | 43,887 | 0,508 | 44,359 |

3. Ekstrak Etanol Kulit Buah Naga

| [Ekstrak] ppm | Simplo | | Duplo | |
|------------------|----------|---------------|----------|----------------|
| | Abs (nm) | %Inhibisi (%) | Abs (nm) | % Inhibisi (%) |
| kontrol | 0,900 | - | 9,043 | - |
| 40 | 0,818 | 9,111 | 0,837 | 11,241 |
| 80 | 0,748 | 16,889 | 0,77 | 18,346 |
| 160 | 0,622 | 30,889 | 0,591 | 37,328 |
| 320 | 0,388 | 56,889 | 0,349 | 62,990 |
| 640 | 0,133 | 85,222 | 0,127 | 86,532 |

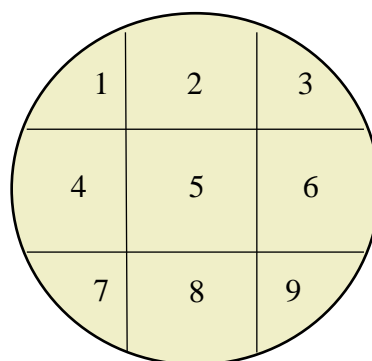
4. Aktivitas antioksidan dengan reagen DPPH untuk *edible film*

| <i>Edible film</i> | % Inhibisi (%) |
|--------------------|----------------|
| EKBN 0% | 3,252 ± 0,459 |
| EKBN 3% | 4,390 ± 0,114 |
| EKBN 5% | 6,667 ± 2,299 |
| EKBN 7% | 8,699 ± 1,035 |

Lampiran 5. Data ketebalan film

| Ulangan | | Ketebalan (mm) | | | |
|-----------|---|----------------|----------|----------|----------|
| | | EKBN 0 % | EKBN 3 % | EKBN 5 % | EKBN 7 % |
| simplo | 1 | 0,09 | 0,08 | 0,1 | 0,08 |
| | 2 | 0,08 | 0,11 | 0,08 | 0,08 |
| | 3 | 0,07 | 0,07 | 0,12 | 0,08 |
| | 4 | 0,08 | 0,11 | 0,07 | 0,12 |
| | 5 | 0,09 | 0,1 | 0,08 | 0,09 |
| | 6 | 0,06 | 0,09 | 0,08 | 0,12 |
| | 7 | 0,09 | 0,09 | 0,13 | 0,1 |
| | 8 | 0,1 | 0,11 | 0,1 | 0,13 |
| | 9 | 0,08 | 0,08 | 0,1 | 0,11 |
| Rata-rata | | 0,082 | 0,093 | 0,095 | 0,101 |
| duplo | 1 | 0,08 | 0,08 | 0,07 | 0,07 |
| | 2 | 0,08 | 0,09 | 0,13 | 0,08 |
| | 3 | 0,08 | 0,09 | 0,08 | 0,09 |
| | 4 | 0,09 | 0,12 | 0,12 | 0,12 |
| | 5 | 0,08 | 0,11 | 0,08 | 0,1 |
| | 6 | 0,08 | 0,1 | 0,08 | 0,13 |
| | 7 | 0,07 | 0,09 | 0,08 | 0,09 |
| | 8 | 0,09 | 0,11 | 0,11 | 0,12 |
| | 9 | 0,08 | 0,07 | 0,12 | 0,12 |
| Rata-rata | | 0,081 | 0,095 | 0,096 | 0,102 |

Visualisasi titik pengukuran ketebalan edible film



Contoh perhitungan ketebalan (data simplo EKBN 0 %):

$$\text{Ketebalan} = \frac{(\text{titik 1} + \text{titik 2} + \dots) \text{ mm}}{\text{jumlah titik}}$$

$$\text{Ketebalan} = \frac{(0,09 + 0,08 + 0,07 + 0,08 + 0,09 + 0,06 + 0,09 + 0,10 + 0,08) \text{ mm}}{9} = 0,082 \text{ mm}$$

Lampiran 6. Perhitungan laju transmisi uap air

| Sampel | Ulangan | Bobot yang hilang jam ke- (g) | | | | | | LTUA |
|------------|---------|-------------------------------|-------|-------|-------|-------|-------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| EKBN 0% | simplo | 0,057 | 0,022 | 0,025 | 0,026 | 0,028 | 0,023 | 15,554 |
| | duplo | 0,044 | 0,030 | 0,029 | 0,028 | 0,024 | 0,032 | 16,080 |
| EKBN 3% | simplo | 0,064 | 0,025 | 0,024 | 0,028 | 0,029 | 0,030 | 20,244 |
| | duplo | 0,030 | 0,032 | 0,032 | 0,032 | 0,034 | 0,029 | 19,155 |
| EKBN 5% | simplo | 0,073 | 0,032 | 0,026 | 0,026 | 0,026 | 0,027 | 21,016 |
| | duplo | 0,032 | 0,031 | 0,032 | 0,030 | 0,033 | 0,025 | 18,442 |
| EKBN 7% | simplo | 0,065 | 0,028 | 0,037 | 0,031 | 0,033 | 0,029 | 21,711 |
| | duplo | 0,034 | 0,035 | 0,037 | 0,036 | 0,038 | 0,033 | 20,697 |

Contoh perhitungan laju transmisi uap air (data simplo EKBN 0 %):

$$\text{Laju transmisi uap air} = \frac{\text{jumlah bobot yang hilang}}{A / t}$$

$$= \frac{(0,057+0,022+0,025+0,026+0,028+0,023)\text{g}}{0,001962 / 6} = 15,554 \text{ g/m}^2/\text{hari}$$

Keterangan:

A = luas permukaan gelas

t = waktu

Lampiran 7. Data kuat tarik dan % elongasi

1. Hasil Uji *Edible film* EKBN 0%

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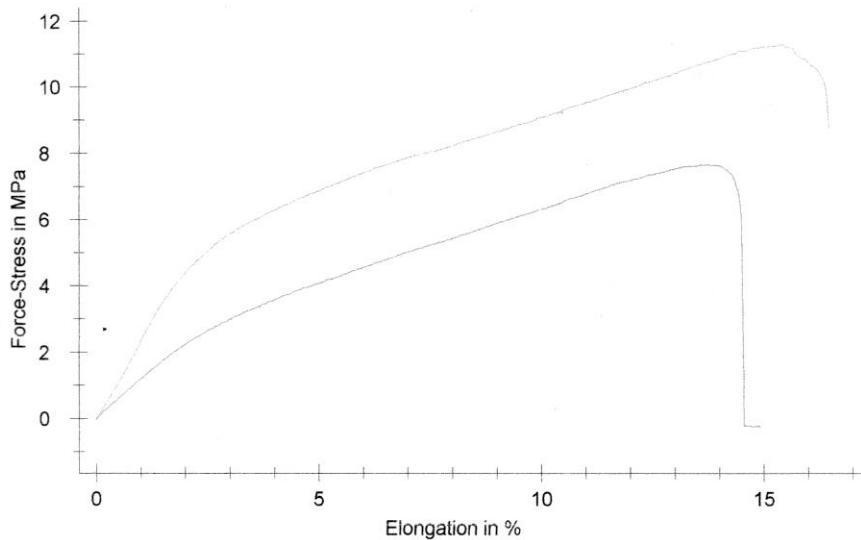
Parameter table:

Company name: 097/PS/02/21 Test standard : Tensile strength
Customer : Material : Kontrol
Tester : Rachmat
Test speed: 10 mm/min

Results:

| Nr | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|----|----------|----------|----------|-----------|-------------------------|----------------------|
| 1 | 0.052 | 5 | 50 | 1.9937 | 7.6679 | 13.6916 |
| 2 | 0.054 | 5 | 50 | 3.0508 | 11.2994 | 15.4003 |

Series graphics:



Statistics:

| Series n = 2 | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|-----------------|----------|----------|----------|-----------|-------------------------|----------------------|
| x | 0.053 | 5 | 50 | 2.5222 | 9.4837 | 14.5460 |
| s | 0.001414 | 0.000 | 0.000 | 0.7475 | 2.5678 | 1.2083 |
| v | 2.67 | 0.00 | 0.00 | 29.64 | 27.08 | 8.31 |



2. Hasil Uji *Edible film* EKBN 3 %

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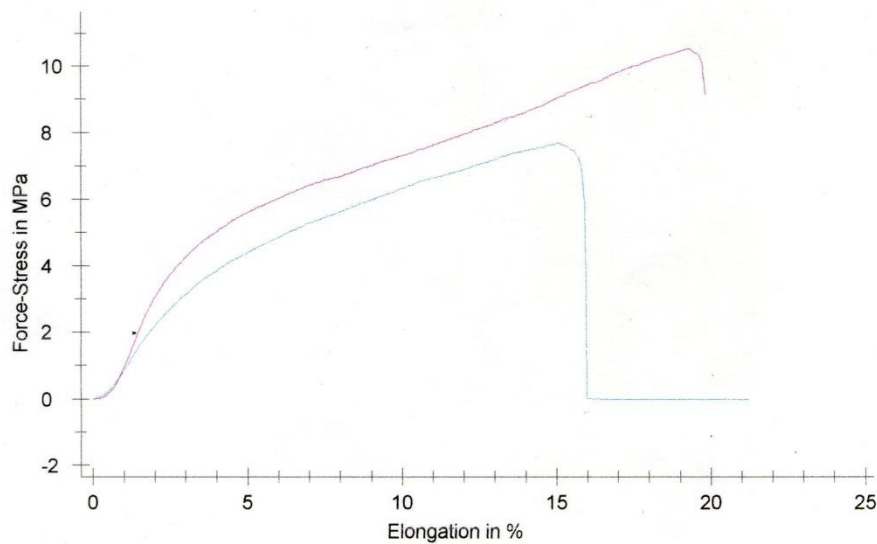
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 Customer : Material : KBN 3%
 Tester : Rachmat
 Test speed: 10 mm/min

Results:

| Nr | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|----|----------|----------|----------|-----------|-------------------------|----------------------|
| 1 | 0.049 | 5 | 50 | 2.5778 | 10.5214 | 19.2274 |
| 2 | 0.049 | 5 | 50 | 1.8844 | 7.6915 | 15.0587 |

Series graphics:



Statistics:

| Series n = 2 | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|-----------------|----------|----------|----------|-----------|-------------------------|----------------------|
| \bar{x} | 0.049 | 5 | 50 | 2.2311 | 9.1065 | 17.1430 |
| s | 0.000 | 0.000 | 0.000 | 0.4903 | 2.0011 | 2.9477 |
| v | 0.00 | 0.00 | 0.00 | 21.97 | 21.97 | 17.19 |



3. Hasil Uji *Edible film* EKBN 5 %

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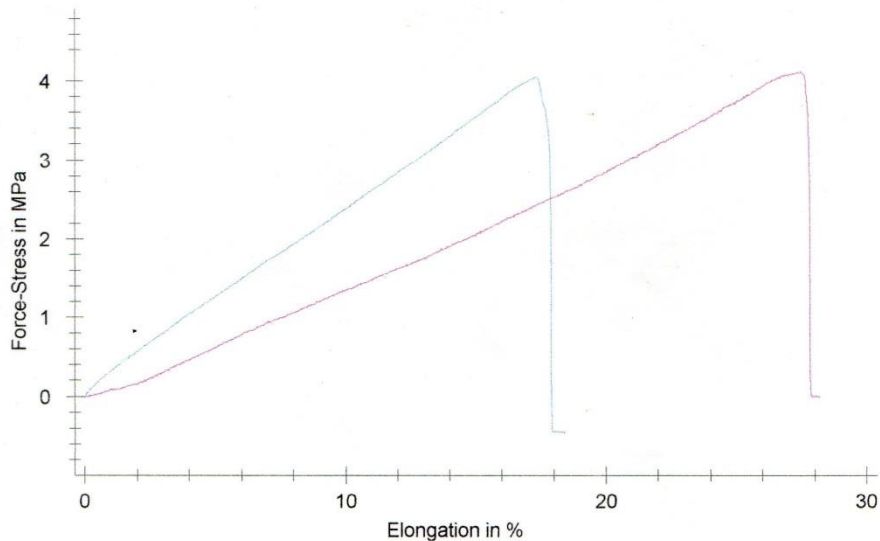
Parameter table:

Company name: 097/PS/02/21 Test standard : Tensile strength
 Customer : Material : KBN 5%
 Tester : Rachmat
 Test speed: 10 mm/min

Results:

| Nr | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|----|----------|----------|----------|-----------|-------------------------|----------------------|
| 1 | 0.05 | 5 | 50 | 1.0316 | 4.1265 | 27.4743 |
| 2 | 0.065 | 5 | 50 | 1.3153 | 4.0471 | 17.2971 |

Series graphics:



Statistics:

| Series n = 2 | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|-----------------|----------|----------|----------|-----------|-------------------------|----------------------|
| x | 0.0575 | 5 | 50 | 1.1735 | 4.0868 | 22.3857 |
| s | 0.01061 | 0.000 | 0.000 | 0.2006 | 0.0562 | 7.1963 |
| v | 18.45 | 0.00 | 0.00 | 17.09 | 1.37 | 32.15 |



4. Hasil Uji *Edible film* EKBN 7 %

097/PS/02/21

23.02.2021

**Fakultas Teknologi Pertanian
Universitas Gadjah Mada**

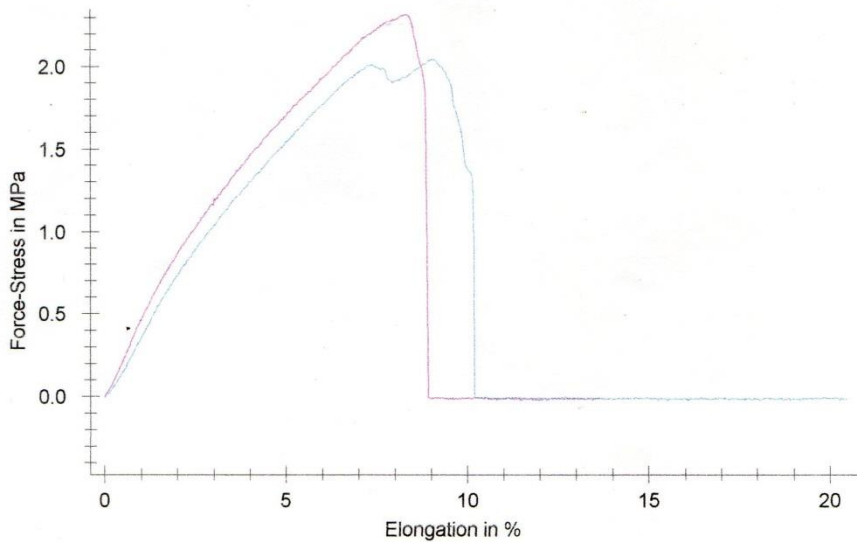
Parameter table:

Company name: 097/PS/02/21 Test standard : Tensile strength
 Customer : Material : KBN 7%
 Tester : Rachmat
 Test speed: 10 mm/min

Results:

| Nr | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|----|----------|----------|----------|-----------|-------------------------|----------------------|
| 1 | 0.087 | 5 | 50 | 1.0078 | 2.3169 | 8.2704 |
| 2 | 0.087 | 5 | 50 | 0.8898 | 2.0455 | 9.0688 |

Series graphics:



Statistics:

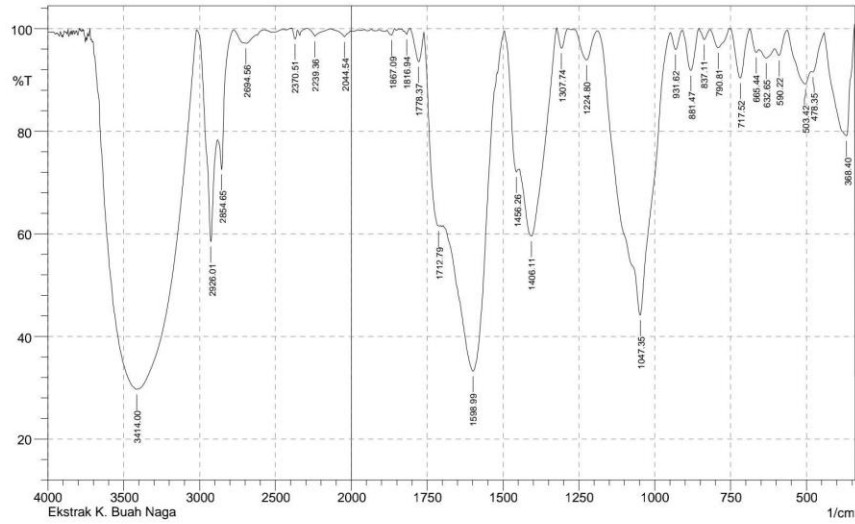
| Series n = 2 | a0 mm | b0 mm | Lc mm | FMax N | Tensile Strength MPa | Strain at Fmax. % |
|-----------------|----------|----------|----------|-----------|-------------------------|----------------------|
| \bar{x} | 0.087 | 5 | 50 | 0.9488 | 2.1812 | 8.6696 |
| s | 0.000 | 0.000 | 0.000 | 0.0835 | 0.1919 | 0.5646 |
| v | 0.00 | 0.00 | 0.00 | 8.80 | 8.80 | 6.51 |



Lampiran 8. Spektrum FTIR

1. Spektrum FTIR ekstrak etanol kulit buah naga

SHIMADZU



| No. | Peak | Intensity | Corr. Intensity | Base (H) | Base (L) | Area | Corr. Area |
|-----|---------|-----------|-----------------|----------|----------|--------|------------|
| 1 | 368.4 | 79.101 | 7.125 | 379.98 | 341.4 | 2.481 | 0.68 |
| 2 | 478.35 | 91.556 | 1.083 | 484.13 | 441.7 | 0.956 | 0.073 |
| 3 | 503.42 | 89.242 | 4.331 | 563.21 | 484.13 | 2.654 | 1.092 |
| 4 | 590.22 | 94.788 | 2.605 | 605.65 | 563.21 | 0.609 | 0.211 |
| 5 | 632.65 | 94.275 | 1.741 | 655.8 | 605.65 | 1.111 | 0.227 |
| 6 | 665.44 | 95.375 | 1.835 | 686.66 | 655.8 | 0.423 | 0.145 |
| 7 | 717.52 | 90.362 | 9.642 | 754.17 | 686.66 | 1.358 | 1.36 |
| 8 | 790.81 | 96.271 | 3.652 | 817.82 | 754.17 | 0.596 | 0.579 |
| 9 | 837.11 | 97.886 | 2.065 | 854.47 | 817.82 | 0.173 | 0.164 |
| 10 | 881.47 | 91.87 | 7.996 | 908.47 | 854.47 | 1.046 | 1.015 |
| 11 | 931.62 | 95.933 | 3.489 | 948.98 | 908.47 | 0.4 | 0.303 |
| 12 | 1047.35 | 44.176 | 55.189 | 1188.15 | 948.98 | 37.938 | 37.306 |
| 13 | 1224.8 | 93.888 | 5.807 | 1267.23 | 1190.08 | 1.067 | 0.969 |
| 14 | 1307.74 | 96.193 | 3.892 | 1323.17 | 1284.59 | 0.312 | 0.324 |
| 15 | 1406.11 | 59.58 | 22.082 | 1446.61 | 1323.17 | 17.182 | 8.65 |
| 16 | 1456.26 | 72.073 | 5.944 | 1494.83 | 1446.61 | 3.977 | 0.58 |
| 17 | 1598.99 | 33.249 | 46.937 | 1697.36 | 1496.76 | 52.502 | 31.386 |
| 18 | 1712.79 | 61.547 | 1.452 | 1761.01 | 1710.86 | 6.444 | 1.069 |
| 19 | 1778.37 | 93.538 | 5.987 | 1805.37 | 1761.01 | 0.695 | 0.622 |
| 20 | 1816.94 | 98.893 | 0.833 | 1824.66 | 1805.37 | 0.044 | 0.026 |
| 21 | 1867.09 | 98.723 | 1.186 | 1882.52 | 1857.45 | 0.088 | 0.073 |
| 22 | 2044.54 | 98.388 | 1.3 | 2137.13 | 2005.97 | 0.405 | 0.277 |
| 23 | 2239.36 | 98.519 | 1.516 | 2291.43 | 2137.13 | 0.379 | 0.395 |
| 24 | 2370.51 | 98.009 | 1.866 | 2393.66 | 2355.08 | 0.17 | 0.156 |
| 25 | 2694.56 | 97.144 | 2.106 | 2777.5 | 2621.26 | 1.309 | 0.817 |
| 26 | 2854.65 | 72.602 | 11.258 | 2881.65 | 2777.5 | 6.042 | 0.452 |
| 27 | 2926.01 | 58.502 | 26.647 | 3020.53 | 2881.65 | 14.307 | 6.851 |
| 28 | 3414 | 29.711 | 1.374 | 3689.83 | 3408.22 | 95.543 | 17.503 |

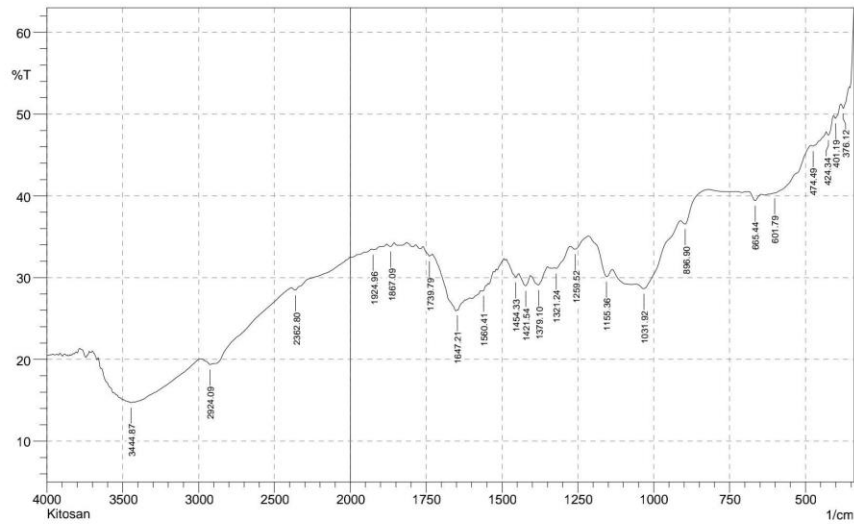
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Ekstrak K. Buah Naga

Date/Time; 2/19/2021 9:15:14 AM
No. of Scans;
Resolution;
Apodization;

CS Scanned with
CamScanner

2. Spektrum FTIR kitosan

SHIMADZU



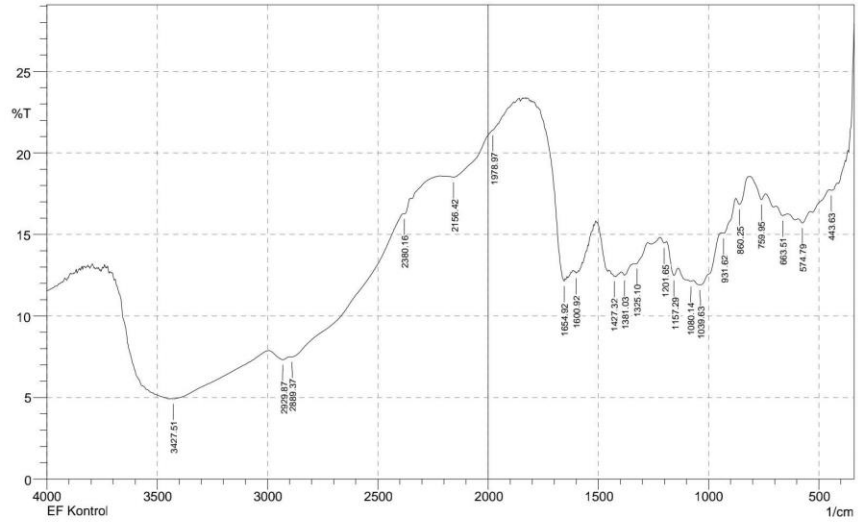
| No. | Peak | Intensity | Corr. Intensity | Base (H) | Base (L) | Area | Corr. Area |
|-----|---------|-----------|-----------------|----------|----------|---------|------------|
| 1 | 376.12 | 50.712 | 1.066 | 383.83 | 354.9 | 8.289 | 0.135 |
| 2 | 401.19 | 49.497 | 0.669 | 406.98 | 383.83 | 6.945 | 0.08 |
| 3 | 424.34 | 47.433 | 1.001 | 432.05 | 406.98 | 7.943 | 0.132 |
| 4 | 474.49 | 46.085 | 0.104 | 482.2 | 470.63 | 3.889 | 0.006 |
| 5 | 601.79 | 40.337 | 0.097 | 603.72 | 482.2 | 45.14 | 0.792 |
| 6 | 665.44 | 39.414 | 0.927 | 688.59 | 646.15 | 16.911 | 0.188 |
| 7 | 896.9 | 36.544 | 1.041 | 912.33 | 819.75 | 37.866 | -0.189 |
| 8 | 1031.92 | 28.639 | 1.979 | 1058.92 | 912.33 | 72.583 | 1.691 |
| 9 | 1155.36 | 30.124 | 1.853 | 1215.15 | 1136.07 | 38.65 | 0.537 |
| 10 | 1259.52 | 33.489 | 0.664 | 1274.95 | 1215.15 | 27.887 | 0.215 |
| 11 | 1321.24 | 31.115 | 0.386 | 1327.03 | 1274.95 | 25.617 | 0.192 |
| 12 | 1379.1 | 29.102 | 1.669 | 1406.11 | 1350.17 | 29.326 | 0.705 |
| 13 | 1421.54 | 28.994 | 1.359 | 1444.68 | 1406.11 | 20.39 | 0.429 |
| 14 | 1454.33 | 30.057 | 0.86 | 1485.19 | 1444.68 | 20.694 | 0.293 |
| 15 | 1560.41 | 28.407 | 0.13 | 1562.34 | 1552.7 | 5.23 | 0.006 |
| 16 | 1647.21 | 26.005 | 0.117 | 1649.14 | 1622.13 | 15.499 | -0.007 |
| 17 | 1739.79 | 32.639 | 0.523 | 1761.01 | 1730.15 | 14.842 | 0.117 |
| 18 | 1867.09 | 33.822 | 0.371 | 1880.6 | 1855.52 | 11.756 | 0.068 |
| 19 | 1924.96 | 33.421 | 0.122 | 1930.74 | 1896.03 | 16.447 | 0.029 |
| 20 | 2362.8 | 28.465 | 0.537 | 2387.87 | 2002.11 | 199.785 | 1.259 |
| 21 | 2924.09 | 19.371 | 0.343 | 2985.81 | 2891.3 | 66.747 | 0.27 |
| 22 | 3444.87 | 14.713 | 0.148 | 3516.23 | 3433.29 | 68.526 | 0.283 |

Comment;
Kitosan

Date/Time; 2/19/2021 9:21:55 AM
No. of Scans;
Resolution;
Apodization;

CS Scanned with
CamScanner

3. Spektrum FTIR *Edible film* tanpa penambahan EKBN



| No. | Peak | Intensity | Corr. Intensity | Base (H) | Base (L) | Area | Corr. Area |
|-----|---------|-----------|-----------------|----------|----------|---------|------------|
| 1 | 443.63 | 17.699 | 0.134 | 451.34 | 414.7 | 27.422 | 0.082 |
| 2 | 574.79 | 15.702 | 0.414 | 594.08 | 540.07 | 43.027 | 0.304 |
| 3 | 663.51 | 16.147 | 0.164 | 694.37 | 655.8 | 30.296 | 0.076 |
| 4 | 759.95 | 17.14 | 0.634 | 812.03 | 740.67 | 53.536 | 0.41 |
| 5 | 860.25 | 16.845 | 0.69 | 875.68 | 812.03 | 48.028 | 0.426 |
| 6 | 931.62 | 15.065 | 0.396 | 943.19 | 875.68 | 54.13 | 0.619 |
| 7 | 1039.63 | 11.906 | 0.949 | 1068.56 | 943.19 | 111.66 | 3.008 |
| 8 | 1080.14 | 12.12 | 0.188 | 1138 | 1068.56 | 63.11 | 0.534 |
| 9 | 1157.29 | 12.487 | 1.03 | 1192.01 | 1138 | 47.455 | 0.871 |
| 10 | 1201.65 | 14.47 | 0.173 | 1220.94 | 1192.01 | 24.17 | 0.067 |
| 11 | 1325.1 | 13.213 | 0.049 | 1327.03 | 1274.95 | 44.795 | 0.064 |
| 12 | 1381.03 | 12.495 | 0.34 | 1394.53 | 1350.17 | 39.681 | 0.255 |
| 13 | 1427.32 | 12.438 | 0.028 | 1438.9 | 1425.4 | 12.193 | 0.009 |
| 14 | 1600.92 | 12.635 | 0.142 | 1616.35 | 1591.27 | 22.457 | 0.053 |
| 15 | 1654.92 | 12.147 | 0.467 | 1774.51 | 1651.07 | 92.466 | -3.385 |
| 16 | 1978.97 | 21.393 | 0.035 | 1980.89 | 1882.52 | 64.187 | -0.025 |
| 17 | 2156.42 | 18.508 | 0.459 | 2185.35 | 1980.89 | 145.172 | 1.955 |
| 18 | 2380.16 | 16.255 | 0.164 | 2385.95 | 2351.23 | 27.057 | 0.096 |
| 19 | 2889.37 | 7.497 | 0.101 | 2895.15 | 2385.95 | 493.742 | 6.877 |
| 20 | 2929.87 | 7.319 | 0.308 | 2993.52 | 2897.08 | 108.357 | 0.872 |
| 21 | 3427.51 | 4.925 | 0.067 | 3435.22 | 2995.45 | 531.335 | 1.769 |

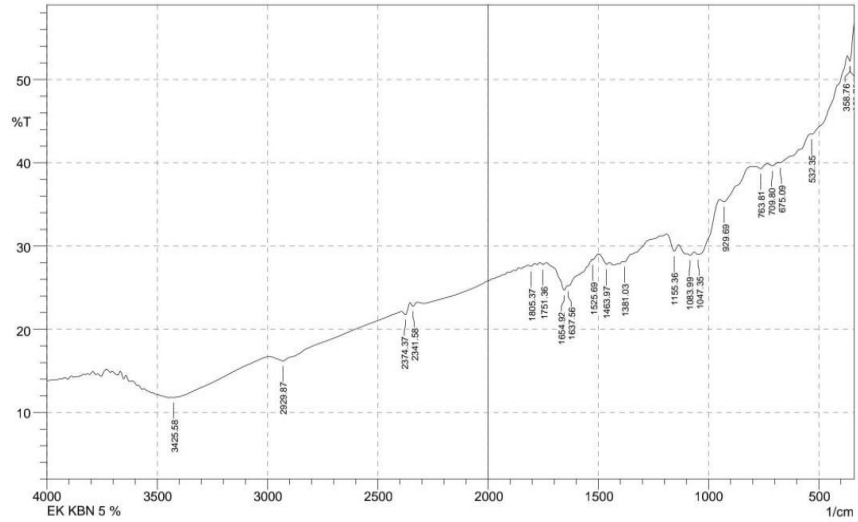
Comment;
EF Kontrol

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No. of Scans;
Resolution;
Apodization;



4. Spektrum FTIR *Edible film* dengan penambahan EKBN

SHIMADZU



| No. | Peak | Intensity | Corr. Intensity | Base (H) | Base (L) | Area | Corr. Area |
|-----|---------|-----------|-----------------|----------|----------|---------|------------|
| 1 | 358.76 | 52.222 | 2.08 | 370.33 | 339.47 | 8.346 | 0.274 |
| 2 | 358.76 | 52.222 | 2.08 | 370.33 | 339.47 | 8.346 | 0.274 |
| 3 | 532.35 | 43.445 | 0.348 | 538.14 | 370.33 | 55.207 | 1.608 |
| 4 | 675.09 | 40.007 | 0.258 | 684.73 | 538.14 | 56.352 | 0.697 |
| 5 | 709.8 | 39.654 | 0.306 | 734.88 | 684.73 | 20.058 | 0.08 |
| 6 | 763.81 | 39.304 | 0.393 | 786.96 | 734.88 | 20.986 | 0.1 |
| 7 | 929.69 | 35.321 | 0.781 | 948.98 | 804.32 | 62.155 | 0.544 |
| 8 | 1047.35 | 28.971 | 1.242 | 1064.71 | 948.98 | 58.548 | 1.696 |
| 9 | 1083.99 | 28.905 | 0.255 | 1099.43 | 1064.71 | 18.64 | 0.063 |
| 10 | 1155.36 | 29.386 | 1.217 | 1190.08 | 1136.07 | 28.062 | 0.426 |
| 11 | 1381.03 | 28.12 | 0.198 | 1390.68 | 1215.15 | 92.232 | -0.432 |
| 12 | 1463.97 | 27.792 | 0.485 | 1494.83 | 1452.4 | 23.277 | 0.151 |
| 13 | 1525.69 | 28.344 | 0.127 | 1529.55 | 1502.55 | 14.672 | 0.032 |
| 14 | 1637.56 | 25.189 | 0.128 | 1641.42 | 1529.55 | 64.302 | 0.231 |
| 15 | 1654.92 | 24.697 | 0.958 | 1714.72 | 1641.42 | 42.688 | 0.286 |
| 16 | 1751.36 | 27.781 | 0.207 | 1764.87 | 1737.86 | 14.979 | 0.045 |
| 17 | 1805.37 | 27.571 | 0.196 | 1816.94 | 1789.94 | 15.067 | 0.046 |
| 18 | 2341.58 | 22.752 | 0.459 | 2353.16 | 2322.29 | 19.704 | 0.132 |
| 19 | 2374.37 | 21.752 | 0.888 | 2393.66 | 2353.16 | 26.456 | 0.34 |
| 20 | 2929.87 | 16.211 | 1.043 | 2989.66 | 2393.66 | 430.733 | 4.022 |
| 21 | 3425.58 | 11.788 | 0.148 | 3437.15 | 2991.59 | 379.669 | 1.19 |

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EK KBN 5 %

Date/Time; 3/22/2021 2:48:51 PM
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Resolution;
Apodization;

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CamScanner

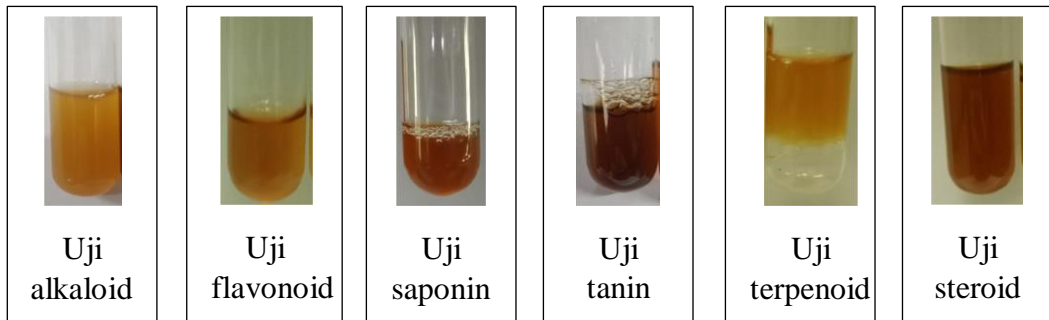
Lampiran 9. Dokumentasi Penelitian

1. Preparasi dan Ekstraksi Kulit Buah Naga

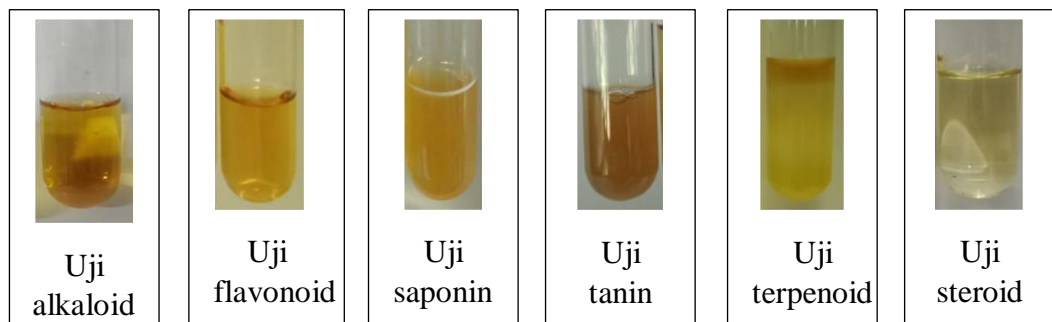


2. Hasil Pengujian Fitokimia

- Uji Fitokimia Ekstrak Akuades Kulit Buah Naga



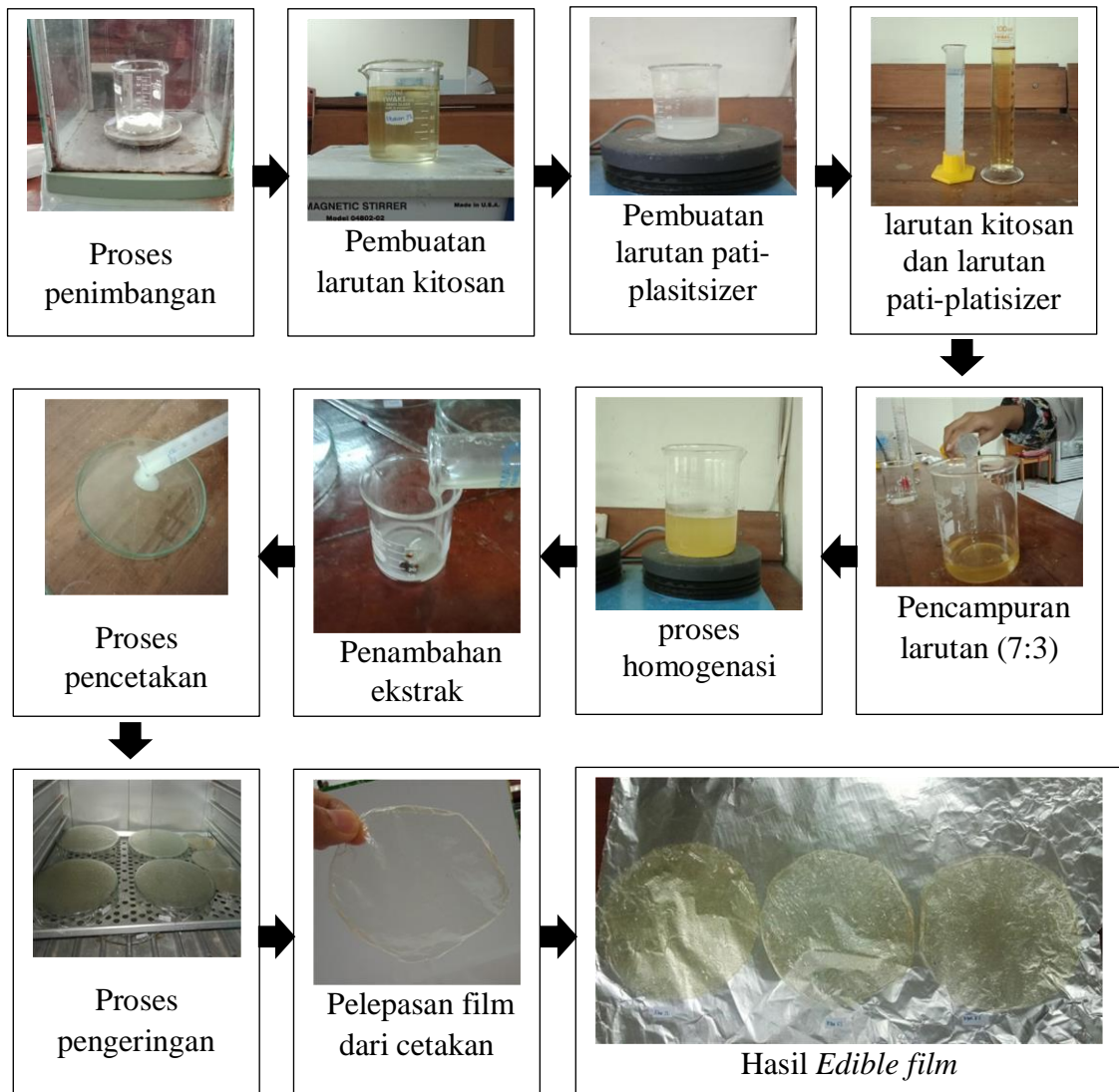
- Uji Fitokimia Ekstrak Etanols Kulit Buah Naga


















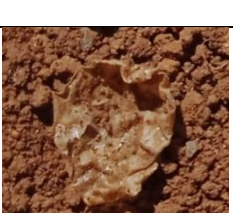



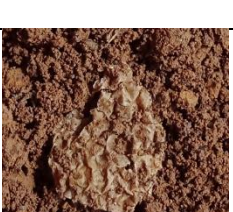
3. Proses Uji Antioksidan Ekstrak Kulit Buah Naga



































4. Proses Pembuatan *Edible film*



Lampiran 9. Biodegradabilitas *Edible film*

| Minggu Ke-1 | | | |
|---|---|--|---|
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-2 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-3 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-4 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-5 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |

| Minggu Ke-6 | | | |
|---|---|--|---|
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-7 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-8 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-9 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-10 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |

| Minggu Ke-11 | | | |
|--|--|---|--|
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-12 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |
| Minggu Ke-13 | | | |
|  |  |  |  |
| Kontrol | EKBN 3% | EKBN 5% | EKBN 7% |