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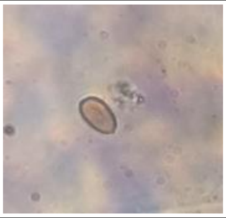
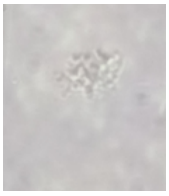
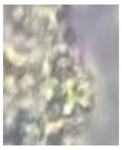
# LAMPIRAN

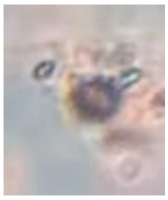
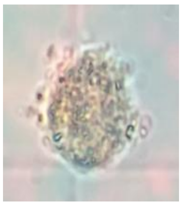
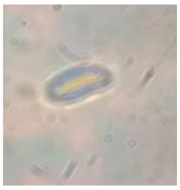
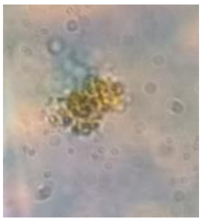
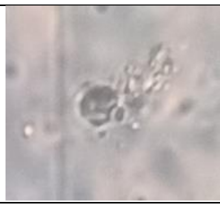
Lampiran 1. Output Diverse kista dinoflagellata di muara sungai Maros dan muara sungai Pangkep menggunakan Aplikasi PRIMER V.5

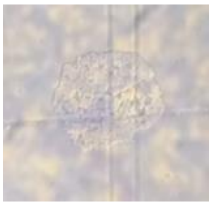
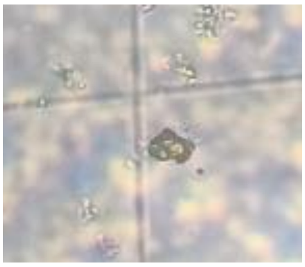
| | S (jumlah individu) | N (Kelimpahan) | J' (Keseragaman) | H' (log 10) (Keanekaragaman) | 1- lambda' (Dominansi) |
|---|---|---|---|---|---|
| **K.M.I.1.1** | 7 | 205 | 0.7666 | 0.6479 | 0.6784 |
| **K.M.I.1.2** | 6 | 99 | 0.9021 | 0.7020 | 0.7710 |
| **K.M.I.1.3** | 7 | 94 | 0.8656 | 0.7316 | 0.7666 |
| **K.M.I.2.1** | 8 | 164 | 0.7202 | 0.6504 | 0.6586 |
| **K.M.I.2.2** | 10 | 178 | 0.8811 | 0.8811 | 0.8428 |
| **K.M.I.2.3** | 11 | 251 | 0.8319 | 0.8663 | 0.8206 |
| **K.M.I.3.1** | 8 | 174 | 0.9494 | 0.8574 | 0.8549 |
| **K.M.I.3.2** | 12 | 235 | 0.9630 | 1.0392 | 0.9042 |
| **K.M.I.3.3** | 12 | 336 | 0.9267 | 1.0001 | 0.8847 |
| **Mean** | 9 | 192.8889 | 0.8674 | 0.8195 | 0.7980 |
| **SE** | 0.7638 | 25.2171 | 0.0273 | 0.0483 | 0.0289 |
| **K.M.II.1.1** | 11 | 368 | 0.8033 | 0.8366 | 0.8022 |
| **K.M.II.1.2** | 13 | 145 | 0.9291 | 1.0350 | 0.8999 |
| **K.M.II.1.3** | 12 | 296 | 0.9055 | 0.9773 | 0.8787 |
| **K.M.II.2.1** | 11 | 325 | 0.8859 | 0.9226 | 0.8572 |
| **K.M.II.2.2** | 10 | 276 | 0.9347 | 0.9347 | 0.8727 |
| **K.M.II.2.3** | 11 | 315 | 0.9009 | 0.9382 | 0.8661 |
| **K.M.II.3.3** | 10 | 330 | 0.9165 | 0.9165 | 0.8582 |
| **Mean** | 11 | 293.5714 | 0.8966 | 0.9373 | 0.8621 |
| **SE** | 0.4041 | 27.0369 | 0.0168 | 0.0229 | 0.0114 |
| **K.M.III.1.1** | 11 | 327 | 0.8981 | 0.9353 | 0.8653 |
| **K.M.III.1.2** | 11 | 231 | 0.9343 | 0.9730 | 0.8791 |
| **K.M.III.1.3** | 9 | 265 | 0.9749 | 0.9303 | 0.8801 |
| **K.M.III.2.1** | 10 | 285 | 0.9256 | 0.9256 | 0.8659 |
| **K.M.III.2.2** | 10 | 377 | 0.8788 | 0.8788 | 0.8423 |
| **K.M.III.2.3** | 9 | 297 | 0.9527 | 0.9091 | 0.8683 |
| **K.M.III.3.1** | 10 | 315 | 0.8993 | 0.8993 | 0.8555 |
| **K.M.III.3.2** | 12 | 259 | 0.8552 | 0.9229 | 0.8515 |
| **K.M.III.3.3** | 11 | 340 | 0.8629 | 0.8986 | 0.8410 |
| **Mean** | 10 | 299.5556 | 0.9091 | 0.9192 | 0.8610 |
| **SE** | 0.3333 | 15.0841 | 0.0136 | 0.0090 | 0.0048 |
| **K.M.IV.1.1** | 9 | 165 | 0.8889 | 0.8482 | 0.8354 |
| **K.M.IV.1.2** | 11 | 317 | 0.8621 | 0.8978 | 0.8436 |
| **K.M.IV.1.3** | 10 | 484 | 0.9352 | 0.9352 | 0.8725 |
| **K.M.IV.2.1** | 12 | 285 | 0.9364 | 1.0106 | 0.8917 |
| **K.M.IV.2.2** | 10 | 283 | 0.9202 | 0.9202 | 0.8667 |
| **K.M.IV.2.3** | 10 | 277 | 0.9396 | 0.9396 | 0.8759 |
| **K.M.IV.3.1** | 12 | 549 | 0.9114 | 0.9836 | 0.8831 |
| **K.M.IV.3.2** | 10 | 311 | 0.9067 | 0.9067 | 0.8590 |
| **K.M.IV.3.3** | 11 | 672 | 0.8985 | 0.9357 | 0.8686 |

| | | | | | |
|---|---|---|---|---|---|
| **Mean** | 11 | 371.4444 | 0.9110 | 0.9309 | 0.8663 |
| **SE** | 0.3379 | 53.7458 | 0.0085 | 0.0158 | 0.0060 |
| **K.P.I.1.1** | 12 | 617 | 0.8429 | 0.9097 | 0.8504 |
| **K.P.I.1.2** | 11 | 550 | 0.9194 | 0.9574 | 0.8750 |
| **K.P.I.1.3** | 12 | 520 | 0.9262 | 0.9995 | 0.8834 |
| **K.P.I.2.1** | 12 | 538 | 0.8974 | 0.9685 | 0.8693 |
| **K.P.I.2.2** | 9 | 547 | 0.8641 | 0.8246 | 0.7975 |
| **K.P.I.2.3** | 11 | 679 | 0.8886 | 0.9254 | 0.8533 |
| **K.P.I.3.1** | 7 | 487 | 0.8705 | 0.7357 | 0.7910 |
| **K.P.I.3.2** | 9 | 374 | 0.8862 | 0.8457 | 0.8317 |
| **K.P.I.3.3** | 10 | 435 | 0.9214 | 0.9214 | 0.8648 |
| **Mean** | 10 | 527.4444 | 0.8907 | 0.8986 | 0.8463 |
| **SE** | 0.5774 | 30.2247 | 0.0095 | 0.0276 | 0.0110 |
| **K.P.II.1.1** | 8 | 257 | 0.8967 | 0.8098 | 0.8265 |
| **K.P.II.1.2** | 10 | 222 | 0.8980 | 0.8980 | 0.8477 |
| **K.P.II.1.3** | 10 | 239 | 0.8982 | 0.8982 | 0.8447 |
| **K.P.II.2.1** | 10 | 505 | 0.8172 | 0.8172 | 0.7830 |
| **K.P.II.2.2** | 9 | 497 | 0.9427 | 0.8995 | 0.8665 |
| **K.P.II.2.3** | 9 | 418 | 0.7972 | 0.7607 | 0.7664 |
| **K.P.II.3.1** | 11 | 208 | 0.8669 | 0.9028 | 0.8473 |
| **K.P.II.3.2** | 12 | 163 | 0.7935 | 0.8563 | 0.7936 |
| **K.P.II.3.3** | 10 | 226 | 0.7998 | 0.7998 | 0.7987 |
| **Mean** | 10 | 303.8889 | 0.8567 | 0.8491 | 0.8194 |
| **SE** | 0.3889 | 43.9357 | 0.0186 | 0.0179 | 0.0116 |
| **K.P.III.1.1** | 8 | 175 | 0.9039 | 0.8163 | 0.8280 |
| **K.P.III.1.2** | 9 | 150 | 0.8921 | 0.8513 | 0.8426 |
| **K.P.III.1.3** | 10 | 272 | 0.8776 | 0.8776 | 0.8422 |
| **K.P.III.2.1** | 8 | 171 | 0.8774 | 0.7924 | 0.8127 |
| **K.P.III.2.2** | 8 | 212 | 0.7561 | 0.6828 | 0.7384 |
| **K.P.III.2.3** | 13 | 230 | 0.8503 | 0.9472 | 0.8530 |
| **K.P.III.3.1** | 9 | 545 | 0.8479 | 0.8091 | 0.8168 |
| **K.P.III.3.2** | 11 | 723 | 0.9433 | 0.9824 | 0.8874 |
| **K.P.III.3.3** | 9 | 348 | 0.7814 | 0.7456 | 0.7344 |
| **Mean** | 9 | 314.0000 | 0.8589 | 0.8339 | 0.8173 |
| **SE** | 0.5556 | 65.3716 | 0.0196 | 0.0313 | 0.0170 |
| **K.P.IV.1.1** | 9 | 167 | 0.9559 | 0.9122 | 0.8719 |
| **K.P.IV.1.2** | 9 | 175 | 0.9014 | 0.8602 | 0.8370 |
| **K.P.IV.2.1** | 9 | 216 | 0.9520 | 0.9085 | 0.8719 |
| **K.P.IV.2.2** | 10 | 124 | 0.9166 | 0.9166 | 0.8700 |
| **K.P.IV.2.3** | 9 | 189 | 0.7910 | 0.7548 | 0.7638 |
| **K.P.IV.3.1** | 8 | 183 | 0.8743 | 0.7895 | 0.8129 |
| **K.P.IV.3.2** | 10 | 33 | 0.8778 | 0.8778 | 0.8598 |
| **K.P.IV.3.3** | 7 | 286 | 0.9148 | 0.7731 | 0.8121 |
| Mean | 9 | 171.6250 | 0.8980 | 0.8491 | 0.8374 |
| SE | 0.3504 | 25.7043 | 0.0186 | 0.0236 | 0.0138 |

Lampiran 2. Gambar kista dinoflagellata yang ditemukan di muara sungai Maros dan muara sungai Pangkep.

| | | |
|---|---|---|
|  |  |  |
| Diplopelta symmetrica | Pentapharsodinium tyrrhenicum | Alexandrium affine |
|  |  |  |
| Alexandrium catenella | Alexandrium Cf. tamarense | Alexandrium minutum |
|  |  |  |
| Alexandrium pseudogonyaulax | Archaeperidinium minutum | Brigantedinium irregulare |
|  |  |  |
| kryptoperidinium foliaceum | Peridinium limbatum | Scripsiella crystallina |
|  |  |  |
| Scripsiella lachrymosa | Scripsiella trifida | Scripsiella cf. lachrymosa |
|  |  |  |
| Scripsiella cf. rotunda | Diplosalis Cf. lebourae | Diplosalis lenticulata |

| | | |
|---|---|---|
|  |  |  |
| Gonyaulax Cf. scrippsae | Gonyaulax digitalis | Gonyaulax scrippsae |
|  |  |  |
| Gonyaulax spinifera | Gonyaulax verior | Spiniferites bentorii |
|  |  |   |
| Cochlodinium polykrikoides | Gymnodinium catenatum | Gymnodinium instriatum |
|  |  |  |
| Polykrikos kofoidii | Polykrikos schwartzii | Islandinium brevispinosum |
|  |  |  |
| Preperidinium meunieri | Protoperidinium americanum | Protoperidinium cf. achromaticum |
|  |  |  |
| Protoperidinium Cf. americanum | Protoperidinium claudicans | Protoperidinium conicoides |
|  |  |  |
| Protoperidinium fukuyoi | Protoperidinium oblongum | Protoperidinium obtusum |

| | | |
|---|---|---|
|  |  |  |
| Protoperidinium pentagonum | Protoperidinium punctulatum | Protoperidinium subinerme |
|  |  | |
| Zygabikodinium lenticulatum | Selenopemphix nephroides | |

Lampiran 3. Tipe sedimen di muara sungai Maros dan muara sungai Pangkep.

| Stasiun | Sub stasiun | Tipe Sedimen | Stasiun | Sub stasiun | Tipe Sedimen |
|---|---|---|---|---|---|
| | **Muara Sungai Maros** | | | **Muara Sungai Pangkep** | |
| I | 1 | Lumpur berpasir | I | 1 | Lumpur |
| | 2 | Lumpur berpasir | | 2 | Lumpur berpasir |
| | 3 | Lumpur berpasir | | 3 | Pasir berlumpur |
| II | 1 | Pasir | II | 1 | Pasir berlumpur |
| | 2 | Lumpur berpasir | | 2 | Lumpur |
| | 3 | Pasir berlumpur | | 3 | Pasir berlumpur |
| III | 1 | Lumpur | III | 1 | Pasir berlumpur |
| | 2 | Lumpur | | 2 | Pasir berlumpur |
| | 3 | Lumpur | | 3 | Lumpur |
| IV | 1 | Pasir berlumpur | IV | 1 | Pasir |
| | 2 | Lumpur berpasir | | 2 | Pasir |
| | 3 | Lumpur | | 3 | Pasir |

Lampiran 4. Frekuensi kehadiran spesies kista dinoflagellata pada muara sungai Maros dan muara sungai Pangkep.

| Family | Genera | Spesies | Maros | | | | Pangkep | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stasiun | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| | | *Alexandrium affine* | √ | - | √ | - | - | - | - | - |
| | | *Alexandrium catenella* | √ | √ | - | - | √ | - | - | - |
| Ostreopsidaceae | Alexandrium | *Alexandrium Cf. tamarense* | - | √ | - | - | - | - | - | - |
| | | *Alexandrium minutum* | √ | - | - | - | - | - | √ | - |
| | | *Alexandrium pseudogonyaulax* | √ | √ | √ | - | √ | √ | - | √ |
| Peridiniida incertae sedis | Arcaeperidinium | *Archaeperidinium minutum* | - | - | - | - | - | - | √ | - |
| | Brigantedinium | *Brigantedinium irregular* | - | √ | √ | - | - | √ | - | - |
| | Kryptoperidinium | *kryptoperidinium foliaceum* | √ | - | √ | √ | √ | √ | √ | √ |
| | Pentapharsodinium | *Pentapharsodinium tyrrhenicum* | √ | √ | √ | √ | √ | √ | √ | - |
| | Peridinium | *Peridinium limbatum* | √ | - | - | - | - | - | - | - |
| Peridiniaceae | | *Scripsiella crystalline* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *Scripsiella lachrymose* | √ | √ | √ | √ | √ | √ | √ | √ |
| | Scripsiella | *Scripsiella trifida* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *Scripsiella cf. lachrymose* | √ | - | - | - | √ | - | - | - |
| | | *Scripsiella cf. rotunda* | √ | - | - | - | - | - | - | - |
| Dinosphaeraceae | Diplosalis | *Diplosalis Cf. lebourae* | √ | √ | √ | - | - | - | - | - |
| | | *Diplosalis lenticulata* | - | - | √ | - | - | - | - | - |
| | | *Gonyaulax Cf. scrippsae* | - | √ | - | - | - | - | - | - |
| Gonyaulacaceae | Gonyaulax | *Gonyaulax digitalis* | - | - | - | - | √ | - | - | - |
| | | *Gonyaulax scrippsae* | √ | - | √ | - | √ | - | - | - |
| | | *Gonyaulax spinifera* | - | √ | - | - | - | - | - | - |
| | | *Gonyaulax verior* | √ | √ | √ | √ | √ | √ | √ | √ |
| | Spiniferites | *Spiniferites bentorii* | √ | - | - | - | - | - | - | - |
| | Cochlodinium | *Cochlodinium polykrikoides* | √ | √ | √ | - | - | √ | - | - |
| Gymnodiniaceae | Gymnodinium | *Gymnodinium catenatum* | √ | - | - | - | - | - | - | - |
| | Gymnodinium | *Gymnodinium instriatum* | √ | - | √ | √ | √ | √ | √ | √ |

Lanjutan

| Family | Genera | Spesies | Maros | | | | Pangkep | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stasiun | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Polykrikaceae | Polykrikos | *Polykrikos kofoidii* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *polykrikos schwartzii* | √ | √ | √ | √ | √ | √ | √ | √ |
| | Islandinium | *Islandinium brevispinosum* | - | - | - | √ | - | - | - | - |
| | Diplopelta | *Diplopelta symmetrica* | √ | √ | √ | √ | √ | √ | √ | √ |
| | Preperidinium | *Preperidinium meunieri* | - | - | √ | - | - | - | - | - |
| Protoperidiniaceae | Protoperidinium | *Protoperidinium americanum* | - | √ | - | - | - | - | - | - |
| | | *Protoperidinium cf. achromaticum* | √ | - | - | - | - | - | - | - |
| | | *Protoperidinium Cf. americanum* | - | - | √ | √ | √ | √ | - | - |
| | | *Protoperidinium claudicans* | - | √ | √ | √ | - | √ | - | - |
| | | *Protoperidinium conicoides* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *Protoperidinium fukuyoi* | - | - | - | √ | - | - | - | - |
| | | *protoperidinium oblongum* | √ | - | √ | - | √ | √ | - | √ |
| | | *Protoperidinium obtusum* | - | - | - | - | √ | - | - | - |
| | | *protoperidinium pentagonum* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *protoperidinium punctulatum* | √ | √ | √ | √ | √ | √ | √ | √ |
| | | *Protoperidinium subinerme* | √ | √ | √ | √ | √ | √ | √ | - |
| | Zygabikodinium | *Zygabikodinium lenticulatum* | - | - | - | √ | - | - | - | - |
| Dinophyceae incertae sedis | Selenopemphix | *Selenopemphix nephroides* | √ | √ | √ | √ | √ | √ | - | - |
| | | *Foraminiferal organic lining* | √ | - | √ | - | - | √ | - | - |

Ket: √ = spesies tersebut ditemukan di stasiun 1,2,3, 4

Lampiran 5. Output uji ANOSIM dan SIMPER dengan menggunakan aplikasi PRIMER V.5

# ANOSIM
## Analysis of Similarities

*Similarity Matrix*

File: Sheet8
Data type: Similarities
Sample selection: All

### One-way Analysis

*Factor Values*

Factor: Lokasi
Maros
Pangkep
*Global Test*

Sample statistic (Global R): 0.224
Significance level of sample statistic: 0.1%
Number of permutations: 999 (Random sample from a large number)
Number of permuted statistics greater than or equal to Global R: 0

# ANOSIM
## Analysis of Similarities

*Similarity Matrix*

File: Sheet2
Data type: Similarities
Sample selection: All

### One-way Analysis

*Factor Values*

Factor: stasiun 1 - 4 maros
Stasiun 1
Stasiun 2
Stasiun 3
Stasiun 4

*Global Test*

Sample statistic (Global R): 0.394
Significance level of sample statistic: 0.1%
Number of permutations: 999 (Random sample from a large number)
Number of permuted statistics greater than or equal to Global R: 0

*Pairwise Tests*

R Significance Possible
Actual Number >=
Groups Statistic Level % Permutations
Permutations Observed

| | | | | | |
|---|---|---|---|---|---|
| Stasiun 1, Stasiun 2 | 0.113 | 8.8 | 11440 | 999 | 87 |
| Stasiun 1, Stasiun 3 | 0.37 | 0.2 | 24310 | 999 | 1 |
| Stasiun 1, Stasiun 4 | 0.585 | 0.1 | 24310 | 999 | 0 |
| Stasiun 2, Stasiun 3 | 0.322 | 0.2 | 11440 | 999 | 1 |
| Stasiun 2, Stasiun 4 | 0.755 | 0.1 | 11440 | 999 | 0 |
| Stasiun 3, Stasiun 4 | 0.306 | 0.2 | 24310 | 999 | 1 |

# ANOSIM
## Analysis of Similarities

*Similarity Matrix*

File: Sheet5
Data type: Similarities
Sample selection: All

## One-way Analysis

*Factor Values*

Factor: Stasiun 1 – 4 pangkep
Stasiun 1
Stasiun 2
Stasiun 3
Stasiun 4

*Global Test*

Sample statistic (Global R): 0.179
Significance level of sample statistic: 0.1%
Number of permutations: 999 (Random sample from a large number)
Number of permuted statistics greater than or equal to Global R: 0

*Pairwise Tests*

| Groups | R Statistic | Significance Level % | Possible Permutations | Actual Permutations | Number >= Observed |
|---|---|---|---|---|---|
| Stasiun 1, Stasiun 2 | 0.147 | 1.4 | 24310 | 999 | 13 |
| Stasiun 1, Stasiun 3 | 0.215 | 0.1 | 24310 | 999 | 0 |
| Stasiun 1, Stasiun 4 | 0.362 | 0.2 | 24310 | 999 | 1 |
| Stasiun 2, Stasiun 3 | 0.178 | 1.5 | 24310 | 999 | 14 |
| Stasiun 2, Stasiun 4 | 0.199 | 0.3 | 24310 | 999 | 2 |
| Stasiun 3, Stasiun 4 | -0.026 | 64.9 | 24310 | 999 | 648 |

# SIMPER
## Similarity Percentages - species contributions

*Worksheet*

File: Sheet7
Sample selection: All
Variable selection: All

*Parameters*

Standardise data: No
Transform: Log(X+1)
Cut off for low contributions: 90.00%
Factor name: Lokasi

*Factor groups*
Maros
Pangkep

*Groups Maros & Pangkep*

Average dissimilarity = 52.77

| Species | Group Maros Av.Abund | Group Pangkep Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Protoperidinium conicoides | 30.24 | 80.14 | 3.82 | 1.20 | 7.23 | 7.23 |
| Gonyaulax verior | 7.32 | 19.03 | 3.40 | 1.54 | 6.44 | 13.67 |
| Scripsiella lachrymosa | 16.71 | 19.74 | 3.07 | 1.33 | 5.81 | 19.48 |

# SIMPER
## Similarity Percentages - species contributions

*Worksheet*

File: Sheet1
Sample selection: All
Variable selection: All

*Parameters*

Standardise data: No
Transform: Log(X+1)
Cut off for low contributions: 90.00%
Factor name: stasiun 1 - 4 maros

*Factor groups*
Stasiun 1
Stasiun 2
Stasiun 3
Stasiun 4

*Groups Stasiun 1 & Stasiun 2*
Average dissimilarity = 60.52

| Species | Group Stasiun 1 Av.Abund | Group Stasiun 2 Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Polykrikos kofoidii | 12.11 | 29.00 | 4.75 | 2.00 | 7.85 | 7.85 |
| Scripsiella crystallina | 17.78 | 52.43 | 4.03 | 1.33 | 6.66 | 14.51 |
| Alexandrium pseudogonyaulax | 9.89 | 18.86 | 2.97 | 1.26 | 4.90 | 19.41 |

*Groups Stasiun 1 & Stasiun 3*

Average dissimilarity = 63.87

| Species | Group Stasiun 1 Av.Abund | Group Stasiun 3 Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Polykrikos kofoidii | 12.11 | 41.22 | 5.41 | 2.13 | 8.47 | 8.47 |
| Protoperidinium conicoides | 6.89 | 33.11 | 4.10 | 1.36 | 6.41 | 14.88 |
| Scripsiella lachrymosa | 1.22 | 21.33 | 4.03 | 1.54 | 6.31 | 21.19 |

*Groups Stasiun 2 & Stasiun 3*

Average dissimilarity = 51.84

| Species | Group Stasiun 2 Av.Abund | Group Stasiun 3 Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Protoperidinium conicoides | 3.14 | 33.11 | 3.86 | 1.56 | 7.45 | 7.45 |
| Alexandrium pseudogonyaulax | 18.86 | 2.22 | 3.55 | 1.84 | 6.84 | 14.29 |
| Diplopelta symmetrica | 24.71 | 7.33 | 3.07 | 1.34 | 5.92 | 20.21 |

*Groups Stasiun 1 & Stasiun 4*

Average dissimilarity = 68.47

| Species | Group Stasiun 1 Av.Abund | Group Stasiun 4 Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Protoperidinium conicoides | 6.89 | 71.78 | 5.49 | 1.93 | 8.01 | 8.01 |
| Polykrikos kofoidii | 12.11 | 47.44 | 5.17 | 2.13 | 7.55 | 15.56 |
| kryptoperidinium foliaceum | 5.11 | 20.89 | 4.25 | 2.10 | 6.21 | 21.77 |

*Groups Stasiun 2 & Stasiun 4*
Average dissimilarity = 60.47

Group Stasiun 2  Group Stasiun 4

| Species | Av.Abund | Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Protoperidinium conicoides | 3.14 | 71.78 | 5.45 | 3.17 | 9.01 | 9.01 |
| kryptoperidinium foliaceum | 0.00 | 20.89 | 3.95 | 2.58 | 6.53 | 15.53 |
| Alexandrium pseudogonyaulax | 18.86 | 0.00 | 3.73 | 2.10 | 6.17 | 21.70 |

*Groups Stasiun 3 & Stasiun 4*

Average dissimilarity = 47.87

| | Group Stasiun 3 | Group Stasiun 4 | | | | |
|---|---|---|---|---|---|---|
| Species | Av.Abund | Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
| protoperidinium punctulatum | 2.00 | 24.67 | 3.66 | 1.64 | 7.65 | 7.65 |
| Protoperidinium Cf. americanum | 11.33 | 29.00 | 3.49 | 1.33 | 7.30 | 14.95 |
| Diplopelta symmetrica | 7.33 | 20.67 | 3.00 | 1.41 | 6.26 | 21.21 |

# SIMPER
## Similarity Percentages - species contributions

*Worksheet*

File: Sheet4
Sample selection: All
Variable selection: All

*Parameters*

Standardise data: No
Transform: Log(X+1)
Cut off for low contributions: 90.00%
Factor name: Stasiun 1 – 4 pangkep

*Factor groups*
Stasiun 1
Stasiun 2
Stasiun 3
Stasiun 4

*Groups Stasiun 1 & Stasiun 2*

Average dissimilarity = 41.89

| | Group Stasiun 1 | Group Stasiun 2 | | | | |
|---|---|---|---|---|---|---|
| Species | Av.Abund | Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |

```
Gymnodinium instriatum                  30.33            6.56
3.22     1.57      7.70   7.70
Protoperidinium pentagonum              40.89           10.78
3.19     1.42      7.62  15.32
Scripsiella lachrymosa                  36.22            8.89
2.75     1.46      6.57  21.89
```

*Groups Stasiun 1 & Stasiun 3*

```
Average dissimilarity = 39.68

                                Group Stasiun 1  Group Stasiun 3
Species                                Av.Abund         Av.Abund
Av.Diss  Diss/SD  Contrib%  Cum.%
Protoperidinium subinerme               29.44            1.44
3.48     1.57      8.78   8.78
Scripsiella lachrymosa                  36.22           23.67
3.02     1.30      7.62  16.39
Gymnodinium instriatum                  30.33           21.11
2.81     1.22      7.07  23.47
```

*Groups Stasiun 2 & Stasiun 3*

```
Average dissimilarity = 37.23

                                Group Stasiun 2  Group Stasiun 3
Species                                Av.Abund         Av.Abund
Av.Diss  Diss/SD  Contrib%  Cum.%
Protoperidinium subinerme               18.56            1.44
3.62     1.61      9.73   9.73
Gymnodinium instriatum                   6.56           21.11
3.15     1.36      8.47  18.19
Protoperidinium pentagonum              10.78           26.56
3.05     1.30      8.20  26.39
```

*Groups Stasiun 1 & Stasiun 4*

```
Average dissimilarity = 42.91

                                Group Stasiun 1  Group Stasiun 4
Species                                Av.Abund         Av.Abund
Av.Diss  Diss/SD  Contrib%  Cum.%
Protoperidinium subinerme               29.44            0.00
4.15     1.66      9.67   9.67
Gymnodinium instriatum                  30.33           10.38
3.09     1.32      7.20  16.87
Scripsiella lachrymosa                  36.22            9.00
3.05     1.56      7.11  23.99
```

*Groups Stasiun 2 & Stasiun 4*

```
Average dissimilarity = 37.97

                                Group Stasiun 2  Group Stasiun 4
Species                                Av.Abund         Av.Abund
Av.Diss  Diss/SD  Contrib%  Cum.%
Protoperidinium subinerme               18.56            0.00
```

| Species | Av.Abund | Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| | | | 4.44 | 1.74 | 11.68 | 11.68 |
| Gymnodinium instriatum | 6.56 | 10.38 | 2.96 | 1.35 | 7.81 | 19.49 |
| Protoperidinium pentagonum | 10.78 | 12.00 | 2.78 | 1.51 | 7.33 | 26.82 |

*Groups Stasiun 3 & Stasiun 4*

Average dissimilarity = 29.76

| Species | Group Stasiun 3 Av.Abund | Group Stasiun 4 Av.Abund | Av.Diss | Diss/SD | Contrib% | Cum.% |
|---|---|---|---|---|---|---|
| Scripsiella lachrymosa | 23.67 | 9.00 | 3.39 | 1.50 | 11.40 | 11.40 |
| Gymnodinium instriatum | 21.11 | 10.38 | 3.39 | 1.31 | 11.38 | 22.78 |
| Protoperidinium pentagonum | 26.56 | 12.00 | 2.66 | 1.36 | 8.94 | 31.72 |

Lampiran 6. Parameter kualitas air dan konsentrasi nutrien sedimen

| Stasiun | Parameter kualitas air | | | | | Konsentrasi Nutrien | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Suhu | DO | Salinitas | Turbiditas | pH | C Organik (%) | C Anorganik (%) | N Total (%) | C/N |
| Muara Sungai Maros | | | | | | | | | |
| I | 34.06±2.92 | 5.98±0.11 | 25.41±4.23 | 2.00±0.24 | 6.74±0.03 | 0.57±0.12 | 0.08±0.08 | 0.03±0.01 | 17.92±4.66 |
| II | 31.12±0.11 | 5.71±0.09 | 31.96±0.10 | 2.46±0.01 | 6.76±0.08 | 0.68±0.18 | 2.24±2.24 | 0.03±0.01 | 19.30±1.22 |
| III | 30.4±0.04 | 6.15±0.03 | 32.66±0.18 | 2.51±0.01 | 7.58±0.01 | 0.91±0.08 | 0.00±0.00 | 0.04±0.01 | 22.30±4.23 |
| IV | 30.28±0.04 | 6.18±0.01 | 32.91±0.03 | 2.43±0.09 | 7.48±0.01 | 0.67±0.18 | 0.00±0.00 | 0.04±0.00 | 17.15±6.19 |
| Muara Sungai Pangkep | | | | | | | | | |
| I | 31.55±0.07 | 6.07±0.03 | 29.10±0.29 | 2.26±0.02 | 7.36±0.02 | 0.89±0.18 | 0.93±0.93 | 0.05±0.01 | 17.63±2.67 |
| II | 31.41±0.49 | 5.95±0.10 | 29.91±0.19 | 2.32±0.01 | 7.22±0.04 | 0.36±0.08 | 2.71±1.76 | 0.04±0.01 | 10.51±1.35 |
| III | 30.85±0.17 | 5.72±0.23 | 31.83±0.08 | 2.45±0.01 | 7.07±0.02 | 0.63±0.22 | 7.60±7.60 | 0.03±0.01 | 18.46±2.88 |
| IV | 30.80±0.08 | 6.04±0.01 | 32.08±0.05 | 2.47±0.00 | 6.94±0.02 | 0.29±0.03 | 5.93±5.93 | 0.02±0.01 | 12.97±1.92 |

Lampiran 7. Dokumentasi