

## LAMPIRAN

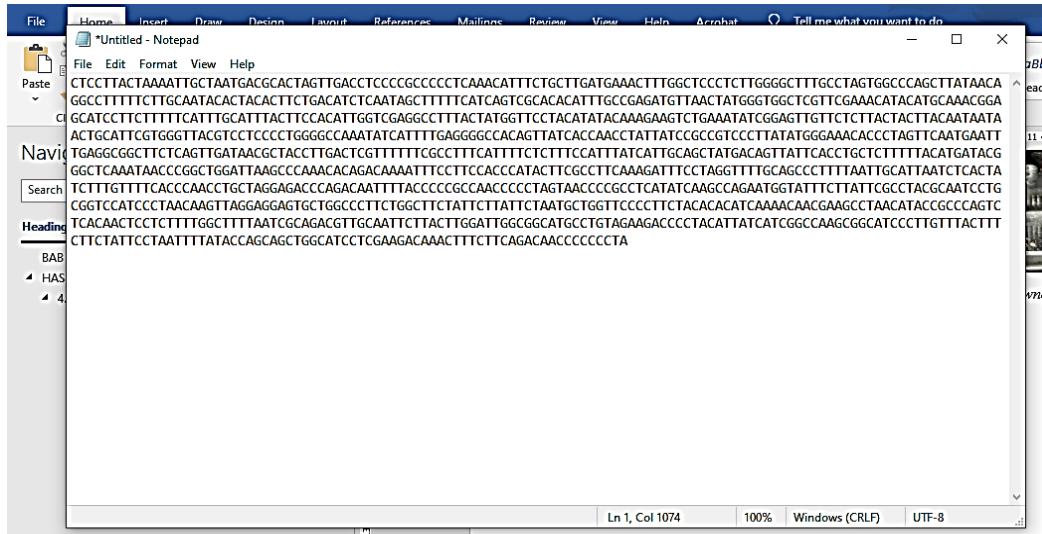
### Lampiran 1.1 Jadwal Pelaksanaan Penelitian

No	Kegiatan	Okt	Nov	Des	Jan	Feb	Mar	Apr	Mei	jun
1.	Pengajuan judul									
2.	Pengajuan Proposal									
3.	Seminar Proposal									
4.	Pengambilan Sampel									
5.	Proses Ekstraksi DNA									
6.	Analisis Data									
7.	Sidang Skripsi									

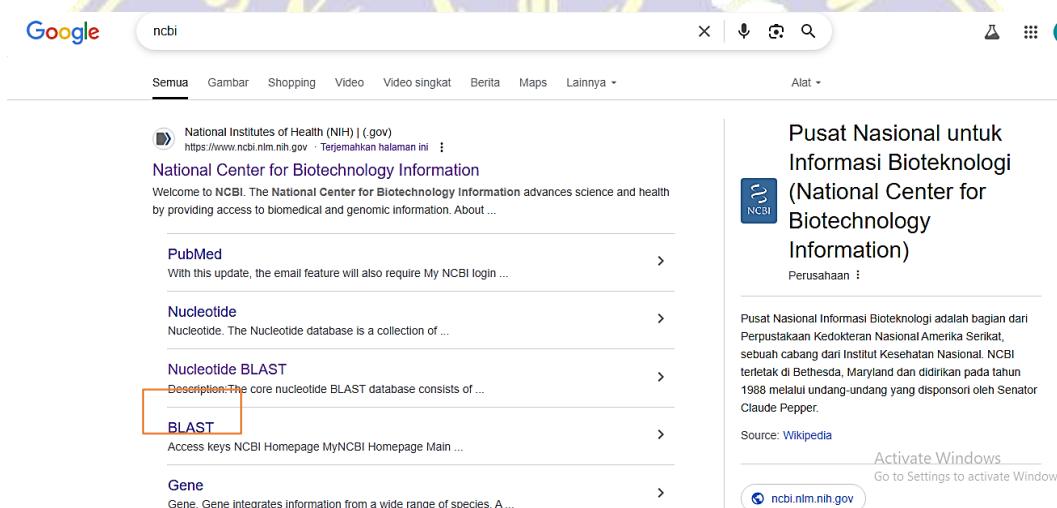
### Lampiran 1.2 Sampel *Betta brownorum*



### Lampiran 1.3 Cara kerja analisis komposisi nukleotida *Betta brownorum*



Keterangan: Membuka notepad lalu menyalin hasil sekuisensi di lembar notepad



Keterangan: Membuka Google lalu menuliskan <https://www.ncbi.nlm.nih.gov>, kemudian memilih BLAST.

Effective August 2025, the **ClusteredNR** database will become the default Protein BLAST database. [Learn more about ClusteredNR](#)

**Basic Local Alignment Search Tool**

BLAST finds regions of similarity between biological sequences. The program compares nucleotide or protein sequences to sequence databases and calculates the statistical significance. [Learn more](#)

**NEWS**

Mon, 17 Mar 2025

Improvements include upgrading to GCP Artifact Registry and better handling of job completion status in kubernetes version 1.30.

ElasticBLAST 1.4.0 is now available! [More BLAST news...](#)

**Web BLAST**

**Nucleotide BLAST** nucleotide ▶ nucleotide

**blastx** translated nucleotide ▶ protein

**tblastn** protein ▶ translated nucleotide

**Protein BLAST** protein ▶ protein

Keterangan: Memilih menu Nukleotide BLAST.

**BLAST** » **blastn suite**

**Important update**  
Effective August 2025, the **ClusteredNR** database will become the default Protein BLAST database. [Learn more about ClusteredNR](#)

**Standard Nucleotide BLAST**

**Enter Query Sequence**  
Enter accession number(s), gis(s), or FASTA sequence(s) [Clear](#)  
CAATTCTACTTGGATTGGGGCATCCCTGTAAGAGACCCCTACATTATCA  
TCGGCCAAGCGGCATCCCTTACTTTCTCTTCTTAATTATACCA  
GCAGCTGGCATCCTGAAGACAAACTTCTTCAGACAACCCCCCTATA  
A

Query subrange [?](#)  
From:   
To:

Or, upload file [Choose File](#) No file chosen [?](#)

Job Title:   
Enter a descriptive title for your BLAST search [?](#)

Align two or more sequences [?](#)

**Choose Search Set**

**Database**  Standard databases (nr etc.)  rRNA/ITS databases  Genomic + transcript databases  Betacoronavirus  Experimental databases  
Core nucleotide database (core\_nt)

**Organism** [Optional](#)  
Enter organism name or id—completions will be suggested  exclude [Add Organism](#)

**Exclude** [Optional](#)  
 Models (XM/XP)  Uncultured/environmental sample sequences

**Limit to** [Optional](#)  
 Sequences from type material

[Feedback](#)

Keterangan: Menyalin hasil sekvensing di kolom pencarian.

**Or, upload file** [Choose File](#) No file chosen [?](#)

Job Title:   
Enter a descriptive title for your BLAST search [?](#)

Align two or more sequences [?](#)

**Choose Search Set**

**Database**  Standard databases (nr etc.)  rRNA/ITS databases  Genomic + transcript databases  Betacoronavirus  Experimental databases  
Core nucleotide database (core\_nt)

**Organism** [Optional](#)  
Enter organism name or id—completions will be suggested  exclude [Add Organism](#)

**Exclude** [Optional](#)  
 Models (XM/XP)  Uncultured/environmental sample sequences

**Limit to** [Optional](#)  
 Sequences from type material

**Entrez Query** [Optional](#)  
Enter an Entrez query to limit search [?](#)

**Program Selection**

**Optimize for**

Highly similar sequences (megablast)  
 More dissimilar sequences (discontiguous megablast)  
 Somewhat similar sequences (blastn)

Choose a BLAST algorithm [?](#)

**BLAST** [Search database core\\_nt using Megablast \(Optimize for highly similar sequences\)](#)  
 Show results in a new window

**Algorithm parameters**

Keterangan: Mengklik BLAST.

**Important update**  
Effective August 2025, the *ClusteredNR* database will become the default Protein BLAST database. [Learn more about ClusteredNR](#)

**Thank you for using ClusteredNR**  
Please share your feedback.

← Edit Search Save Search Search Summary ▾

Job Title Nucleotide Sequence  
RID 3XSED0P0016 Search expires on 06-04 19:51 pm [Download All](#) ▾  
Program BLASTN ⓘ Citation  
Database core\_nt [See details](#) ▾  
Query ID IclQuery\_7290047  
Description None  
Molecule type dna  
Query Length 1123  
Other reports Distance tree of results MSA viewer ⓘ

Filter Results  
Organism only top 20 will appear  exclude  
Type common name, binomial, taxid or group name  
+ Add organism  
Percent Identity E value Query Coverage  
[ ] to [ ] [ ] to [ ] [ ] to [ ]  
Filter Reset

Descriptions Graphic Summary Alignments Taxonomy

Keterangan: Mendapatkan hasil panjang nukleotida

Other reports Distance tree of results MSA viewer ⓘ

Filter Reset

Descriptions Graphic Summary Alignments Taxonomy

Sequences producing significant alignments

Download Select columns Show 100 ⓘ

<input checked="" type="checkbox"/> select all 100 sequences selected	Description	Scientific Name	Max Score	Total Cover	E value	Per. Ident	Acc Len	Accession
<input checked="" type="checkbox"/>	Betta rutilans isolate B207 cytochrome b (Cytb) gene, complete cds, and tRNA-Thr gene, partial sequence, mitochondrial	Betta rutilans	1917	1917	100%	0.0	97.43%	1163 AF519682.1
<input checked="" type="checkbox"/>	Betta rutilans isolate LR4856 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta rutilans	1917	1917	98%	0.0	98.09%	1134 KF203905.1
<input checked="" type="checkbox"/>	Betta rutilans isolate LR4857 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta rutilans	1882	1882	95%	0.0	98.41%	1104 KF203906.1
<input checked="" type="checkbox"/>	Betta rutilans isolate sge9 cytochrome b (Cytb) gene, partial cds, mitochondrial	Betta rutilans	1827	1827	93%	0.0	98.37%	1047 QO296602.1
<input checked="" type="checkbox"/>	Betta rutilans isolate sge10 cytochrome b (Cytb) gene, partial cds, mitochondrial	Betta rutilans	1827	1827	93%	0.0	98.37%	1047 QO296603.1
<input checked="" type="checkbox"/>	Betta rutilans isolate sge11 cytochrome b (Cytb) gene, partial cds, mitochondrial	Betta rutilans	1827	1827	93%	0.0	98.37%	1047 QO296604.1
<input checked="" type="checkbox"/>	Betta rutilans isolate sge12 cytochrome b (Cytb) gene, partial cds, mitochondrial	Betta rutilans	1827	1827	93%	0.0	98.37%	1047 QO296605.1
<input checked="" type="checkbox"/>	Betta rutilans isolate sge13 cytochrome b (Cytb) gene, partial cds, mitochondrial	Betta rutilans	1821	1821	93%	0.0	98.27%	1047 QO296606.1
<input checked="" type="checkbox"/>	Betta brownorum isolate LR4849 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta brownorum	1784	1784	98%	0.0	95.92%	1134 KF203749.1
<input checked="" type="checkbox"/>	Betta brownorum isolate LR4848 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta brownorum	1779	1779	98%	0.0	95.83%	1134 KF203748.1
<input checked="" type="checkbox"/>	Betta brownorum isolate LR4847 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta brownorum	1762	1762	98%	0.0	95.55%	1134 KF203747.1
<input checked="" type="checkbox"/>	Betta brownorum isolate LR0282 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta brownorum	1757	1757	98%	0.0	95.46%	1134 KF203744.1
<input checked="" type="checkbox"/>	Betta brownorum isolate B150 cytochrome b (CYTB) gene, partial cds, mitochondrial	Betta brownorum	1735	1735	98%	0.0	95.10%	1134 KF203743.1

Keterangan: Menggeser halaman ke bawah lalu menyalin Accession yang dikehendaki

An official website of the United States government [Here's how you know](#) ⓘ

National Library of Medicine  
National Center for Biotechnology Information

All Databases Books ClinVar  
Conserved Domains dbGaP dbVar Gene Genome GEO DataSets GEO Profiles GTR Identical Protein Groups MedGen MeSH NLM Catalog  
Literature Proteins Nucleotide  
OMIM PMC Protein Protein Clusters Protein Family Models

NCBI Center for Biotechnology Information advances science and health by providing access to genomic information.

Submit Your manuscripts to NCBI databases

Download Transfer NCBI data to your computer

Develop Identify an NCBI tool for your data analysis task

Analyze Identify an NCBI tool for your data analysis task

Learn Find help documents, attend a class or watch a tutorial

Research Explore NCBI research and collaborative projects

Popular Resources PubMed Bookshelf PubMed Central BLAST Nucleotide Genome SNP Gene Protein PubChem

NCBI News & Blog

GenBank Release 266.0 Now Available! 10 Jun 2025  
GenBank release 266 (10 Jun 2025) is now available on the NCBI FTP site. This release has add 0.7 trillion bases and 4.6K

NCBI ALFA Release 4 Now Available

Keterangan: Membuka Google lalu menuliskan ncbi.nlm.nih.gov , lalu mengganti all databases menjadi nucleotides.

An official website of the United States government [Here's how you know](#)

**National Library of Medicine**  
National Center for Biotechnology Information

**Nucleotide**

Species: Animals (9)

Molecule types: genomic DNA/RNA (9)

Source databases: INSDC (GenBank) (9)

Sequence Type: Nucleotide (9)

Sequence length: Custom range...

Revision date: Custom range...

Summary: 20 per page

Send to:

See [CYTB cytochrome b](#) in the Gene database [cytb reference sequences Protein \(1\)](#)

**Items: 9**

1. [Betta rutilans isolate sqe14 cytochrome b \(Cytb\) gene, partial cds; mitochondrial](#)  
1,047 bp linear DNA  
Accession: Q0299607.1 GI: 2519790370  
Protein Taxonomy  
GenBank FASTA Graphics

2. [Betta rutilans isolate sqe13 cytochrome b \(Cytb\) gene, partial cds; mitochondrial](#)  
1,047 bp linear DNA  
Accession: Q0299608.1 GI: 2519790368  
Protein Taxonomy  
GenBank FASTA Graphics

3. [Betta rutilans isolate sqe12 cytochrome b \(Cytb\) gene, partial cds; mitochondrial](#)  
1,047 bp linear DNA

Analyze these sequences

Find related data

Search details

Activate Windows

Keterangan: Menulis nama spesies yang dicari pada kolom pencarian lalu menyalin Accession

An official website of the United States government [Here's how you know](#)

**National Library of Medicine**  
National Center for Biotechnology Information

**Nucleotide**

GenBank

**Betta rutilans isolate LR4856 cytochrome b (CYTB) gene, partial cds; mitochondrial**

GenBank: KF203905.1

Go to:

LOCUS KF203905 1134 bp DNA linear VRT 01-MAY-2019  
DEFINITION Betta rutilans isolate LR4856 cytochrome b (CYTB) gene, partial  
cds; mitochondrial.  
ACCESSION KF203905  
VERSION KF203905.1  
KEYWORDS .  
SOURCE mitochondrial Betta rutilans  
ORGANISM [Betta rutilans](#)  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Actinopterygii; Neopterygii; Teleostei; Neoteleostei;  
Acanthomorpha; Anabantaria; Anabantoidae; Anabantoidei;  
Ophryopheneidae; Betta.  
REFERENCE 1 (bases 1 to 1134)  
AUTHORS Lavoue,S., Britz,R., Tan,H.H., Yaakob,N. and Ruber,L.

Analyze this sequence

Pick Primers  
Highlight Sequence Features  
Find in this Sequence

Related information

Taxonomy

Activate Windows

Keterangan: Menyalin Accession pada kolom pencarian lalu mengklik FASTA

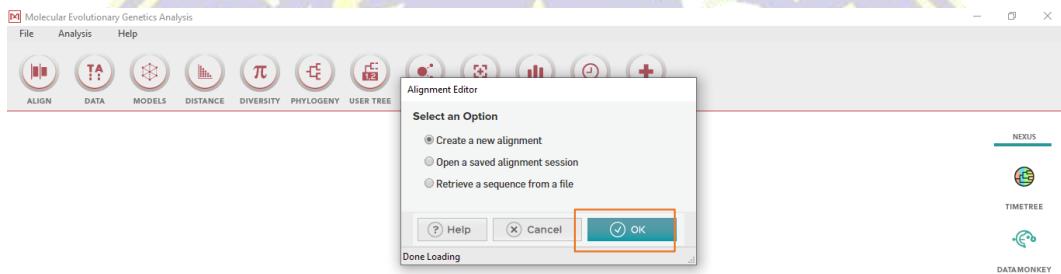
Keterangan: Memilih Send to, Complete Record, File, dan menyimpannya dalam format FASTA kemudian klik Create file

Keterangan: Menyimpan file dengan format fasta dan memberikan nama sesuai dengan nama spesies.

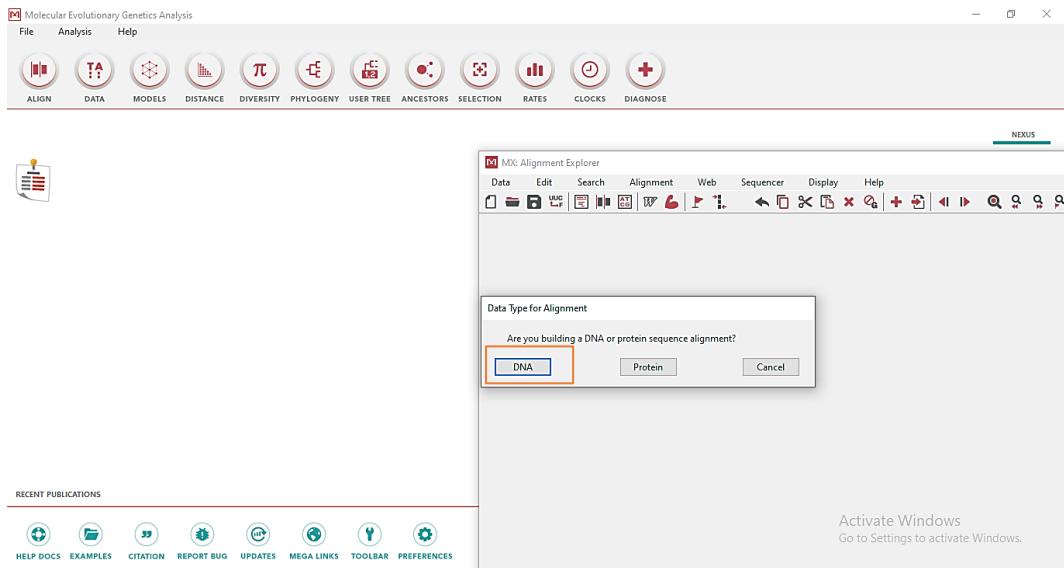
Keterangan: Buka aplikasi MEGA 10 dan memilih menu Align.



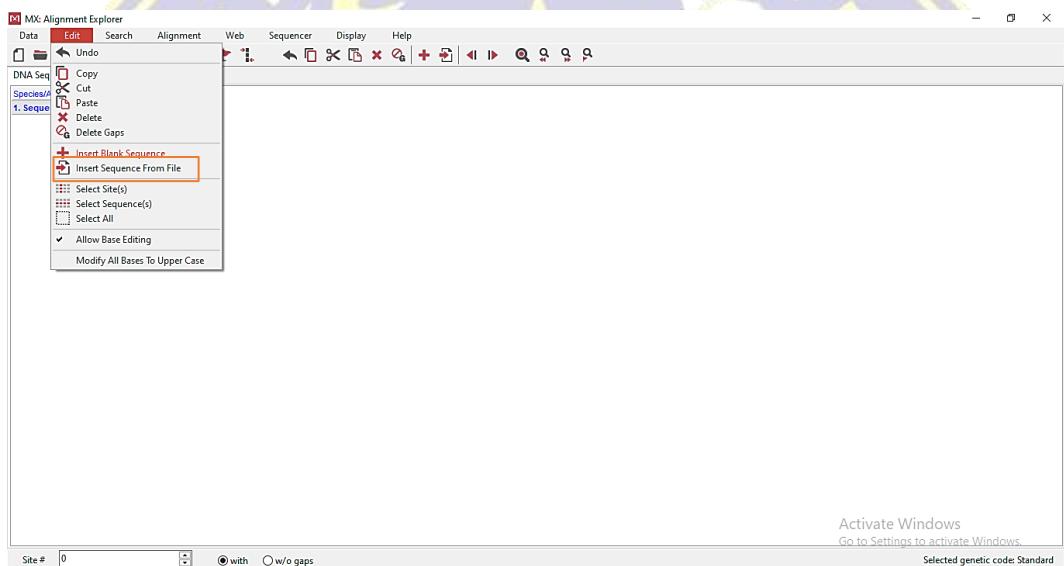
### Keterangan: Memilih Edit/Build Alignment



### Keterangan: Pilih Create a new alignment lalu OK



Keterangan: Memilih pilihan DNA



Keterangan: Memilih menu edit lalu memilih Insert Sequences From File lalu pilih file sekuens dengan format FASTA.

MX: Alignment Explorer

Data Edit Search Alignment Web Sequencer Display Help

DNA Sequences Translated Protein Sequences

Species/Abbrev

1. *Betta brownorum* | Borneo  
2. *Betta brownorum* 2  
3. *Betta brownorum* 3  
4. *Betta brownorum* 4  
5. *Betta brownorum* 5  
6. *Betta brownorum* 6  
7. *Betta brownorum* 7  
8. *Betta brownorum* 8  
9. *Betta brownorum* 9  
10. *Betta rutlans* - 1  
11. *Betta rutlans* - 2  
12. *Betta rutlans* - 3  
13. *Betta rutlans* - 4  
14. *Betta rutlans* - 5  
15. *Betta rutlans* - 6  
16. *Betta rutlans* - 7  
17. *Betta rutlans* - 8  
18. *Betta ubera* | Kalimantan  
19. *Betta burdigala* | Pulau Bangka  
20. *Betta lividus* | Malaysia  
21. *Betta idei* | Kalimantan Selatan  
22. *Betta compuncta* | Kalimantan Timur  
23. *Betta midae* | Kalimantan Barat  
24. *Betta ocellata* | Kalimantan Timur  
25. *Betta coccina* | Sumatra  
26. *Betta akarensis* | Borneo  
27. *Betta ensisa* | Kalimantan Barat  
28. *Betta foerschi* | Borneo  
29. *Betta kraatzi* | Kalimantan Barat  
30. *Betta pugnax* | Malaysia  
31. *Betta mander* | Kalimantan Barat

Site # 1 with O w/o gaps Go to Settings to activate Windows Selected genetic code: Standard

### Keterangan: Memilih menu Alignment

MX: Alignment Explorer

Data Edit Search Alignment Web Sequencer Display Help

DNA Sequences Translated Protein Sequences

Species/Abbrev

1. *Betta brownorum* | Borneo  
2. *Betta brownorum* 2  
3. *Betta brownorum* 3  
4. *Betta brownorum* 4  
5. *Betta brownorum* 5  
6. *Betta brownorum* 6  
7. *Betta brownorum* 7  
8. *Betta brownorum* 8  
9. *Betta brownorum* 9  
10. *Betta rutlans* - 1  
11. *Betta rutlans* - 2  
12. *Betta rutlans* - 3  
13. *Betta rutlans* - 4  
14. *Betta rutlans* - 5  
15. *Betta rutlans* - 6  
16. *Betta rutlans* - 7  
17. *Betta rutlans* - 8  
18. *Betta ubera* | Kalimantan  
19. *Betta burdigala* | Pulau Bangka  
20. *Betta lividus* | Malaysia  
21. *Betta idei* | Kalimantan Selatan  
22. *Betta compuncta* | Kalimantan Timur  
23. *Betta midae* | Kalimantan Barat  
24. *Betta ocellata* | Kalimantan Timur  
25. *Betta coccina* | Sumatra  
26. *Betta akarensis* | Borneo  
27. *Betta ensisa* | Kalimantan Barat  
28. *Betta foerschi* | Borneo  
29. *Betta kraatzi* | Kalimantan Barat  
30. *Betta pugnax* | Malaysia  
31. *Betta mander* | Kalimantan Barat

Site # 36 with O w/o gaps Go to Settings to activate Windows Selected genetic code: Standard

### Keterangan : Mengklik kiri sekali pada salah satu basa nukleotida lalu mengklik Ctrl+A, lalu memilih Align by ClustalW

MX: Alignment Explorer

Data Edit Search Alignment Web Sequencer Display Help

DNA Sequences Translated Protein Sequences

Species/Abbrv

1. Betta brownorum | Borneo 2. Betta brownorum 2 3. Betta brownorum 3 4. Betta brownorum 4 5. Betta brownorum 5 6. Betta brownorum 6 7. Betta brownorum 7 8. Betta brownorum 8 9. Betta brownorum 9 10. Betta rutlans- 1 11. Betta rutlans- 2 12. Betta rutlans- 3 13. Betta rutlans- 4 14. Betta rutlans- 5 15. Betta rutlans- 6 16. Betta rutlans- 7 17. Betta rutlans- 8 18. Betta ubera | Kalimantan 19. Betta burdigala | Pulau Bangka 20. Betta vivida | Malaysia 21. Betta idei | Kalimantan Selatan 22. Betta compuncta | Kalimantan Timur 23. Betta midas | Kalimantan Barat 24. Betta ocellata | Kalimantan Timur 25. Betta coccina | Sumatra 26. Betta akarensis | Borneo 27. Betta enisa | Kalimantan Barat 28. Betta foerschi | Borneo 29. Betta kratea | Kalimantan Barat 30. Betta pugnax | Malaysia 31. Betta mander | Kalimantan Barat

ClustalW Options

Alignment

Pairwise Alignment

Gap Opening Penalty: 15.00

Gap Extension Penalty: 6.66

Multiple Alignment

Gap Opening Penalty: 15.00

Gap Extension Penalty: 6.66

Matrix

Help Cancel OK

Done Loading

Site # 36 with w/o gaps

Selected genetic code: Standard

Go to Settings to activate Windows... >

Keterangan: Mengklik OK.

MX: Alignment Explorer

Data Edit Search Alignment Web Sequencer Display Help

DNA Sequences Translated Protein Sequences

Species/Abbrv

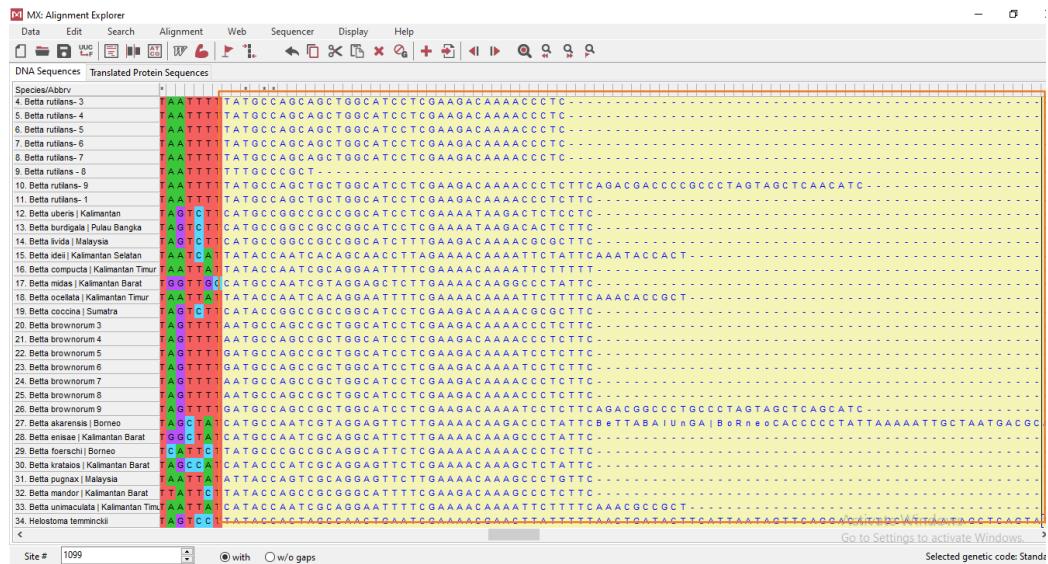
4. Betta rutlans- 3 5. Betta rutlans- 4 6. Betta rutlans- 5 7. Betta rutlans- 6 8. Betta rutlans- 7 9. Betta rutlans- 8 10. Betta rutlans- 9 11. Betta rutlans- 1 12. Betta ubera | Kalimantan 13. Betta burdigala | Pulau Bangka 14. Betta lividia | Malaysia 15. Betta idei | Kalimantan Selatan 16. Betta compuncta | Kalimantan Timur 17. Betta midas | Kalimantan Barat 18. Betta ocellata | Kalimantan Timur 19. Betta coccina | Sumatra 20. Betta brownorum 3 21. Betta brownorum 4 22. Betta brownorum 5 23. Betta brownorum 6 24. Betta brownorum 7 25. Betta brownorum 8 26. Betta brownorum 9 27. Betta akarensis | Borneo 28. Betta enisa | Kalimantan Barat 29. Betta foerschi | Borneo 30. Betta kratea | Kalimantan Barat 31. Betta pugnax | Malaysia 32. Betta mander | Kalimantan Barat 33. Betta unimacula | Kalimantan Timur 34. Helostoma temminckii

Site # 1 with w/o gaps

Selected genetic code: Standard

Go to Settings to activate Windows... >

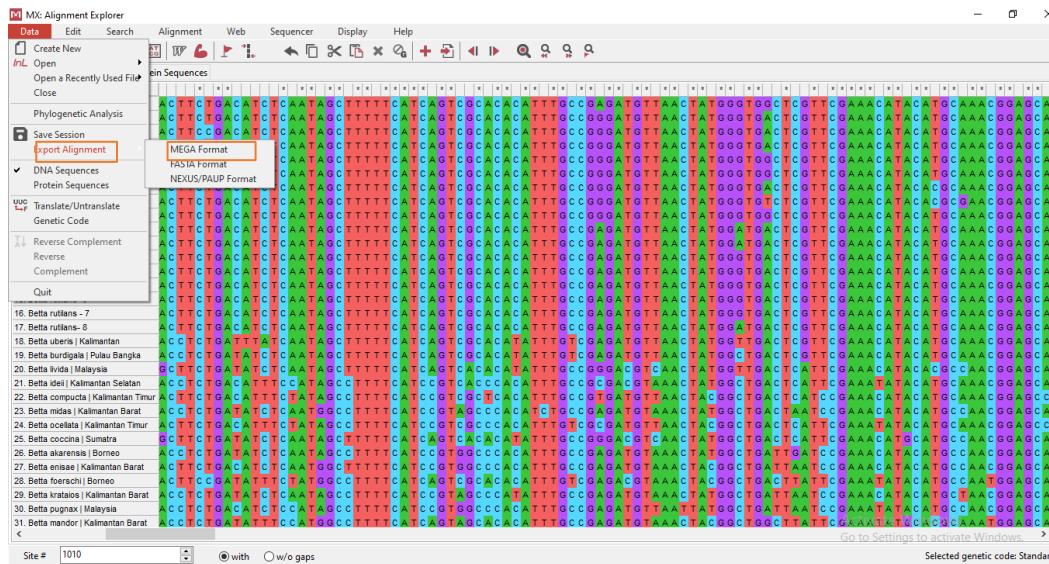
Keterangan: Memangkas kolom yang tidak terisi basa nukleotida di ujung kiri



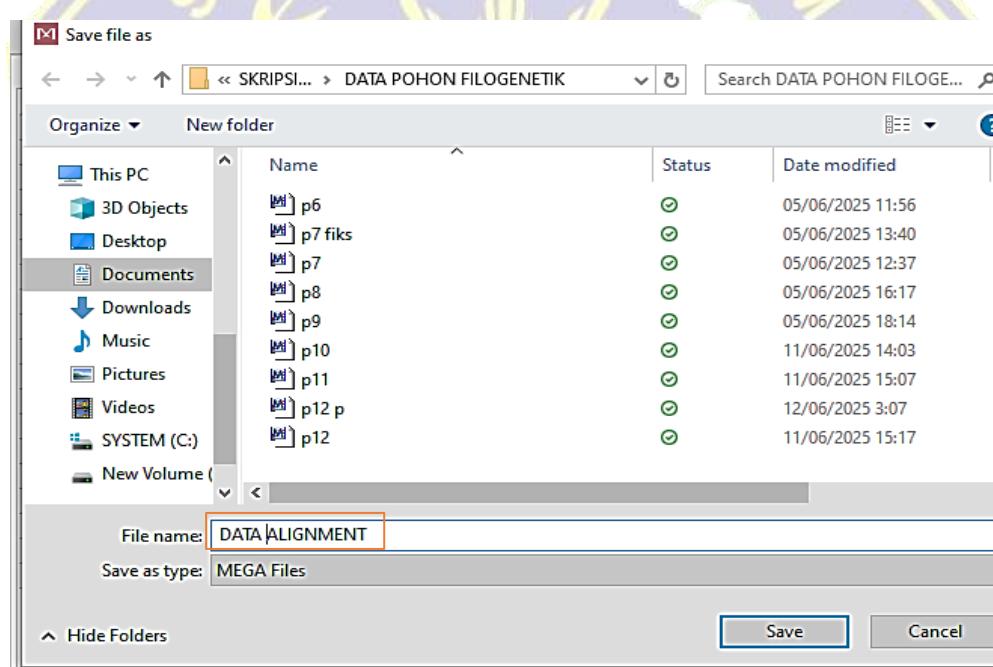
Keterangan: Memangkas kolom yang tidak terisi basa nukleotida di ujung kanan.



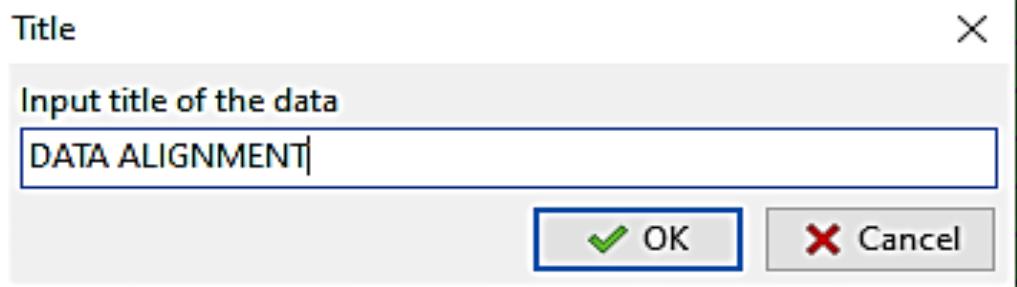
Keterangan: Hasil pencejajaran yang akan digunakan untuk analisis filogenetik, komposisi nukleotida, dan jarak genetik.



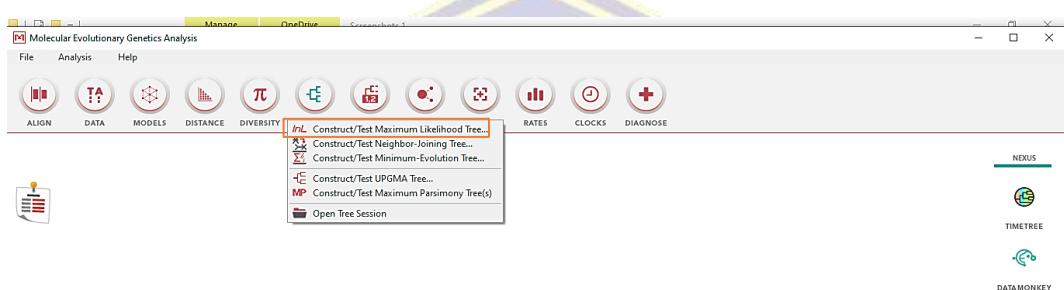
Keterangan: Memilih menu Data lalu Export Alignment dan memilih MEGA format.



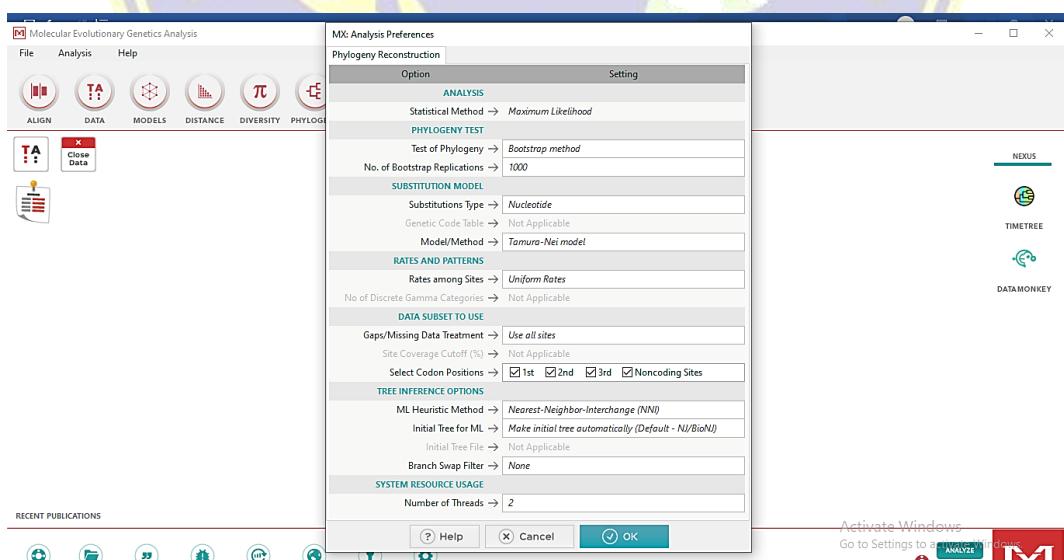
Keterangan: Memberikan nama pada hasil pencejajaran dengan format MEGA lalu Save.



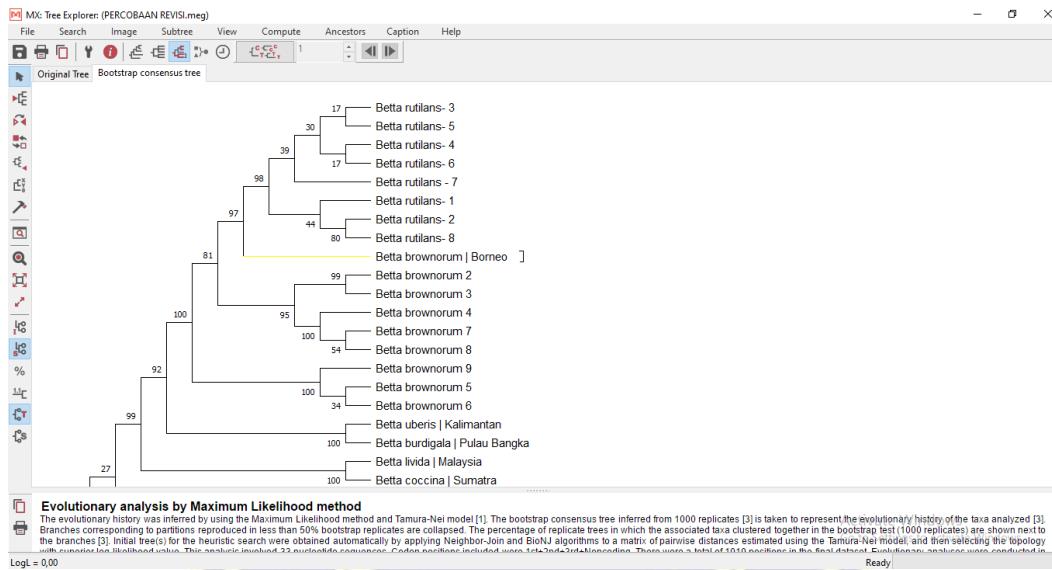
Keterangan: Menuliskan kembali nama hasil pensejajaran di kolom yang tersedia lalu OK.



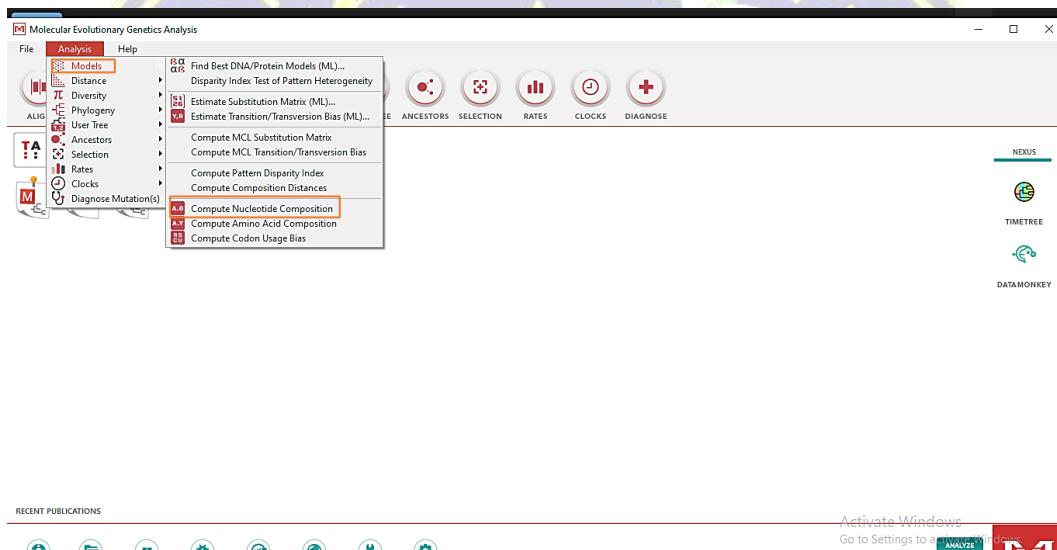
Keterangan: Memilih menu PHYLLOGENY lalu Construck/Test Maximum Likelihood Tree



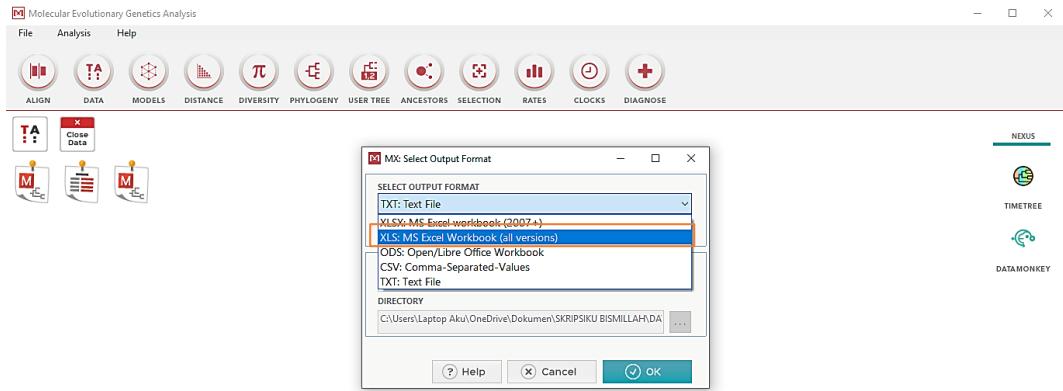
Keterangan: Mengatur Phylogeny Reconstruction seperti gambar di atas lalu OK



Keterangan: Hasil pohon filogenetika.



Keterangan : minimize hasil filogenetik, memilih menu Analysis lalu models kemudian memilih Compute Nucleotida composition.



Keterangan: Memilih formas XLS lalu OK.

MEGA-result5 [Compatibility Mode] - Excel

RECENT PUBLICATIONS

Activate Windows  
Go to Settings to activate Windows

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat Tell me what you want to do

Clipboard Font Alignment Number Formatting Styles Cells Editing Add-ins Create a PDF

General

1 Domain: Data

2 T(U)

3 Beta brownorum | Borneo

4 Beta brownorum 2

5 Beta brownorum 3

6 Beta brownorum 4

7 Beta brownorum 5

8 Beta brownorum 6

9 Beta brownorum 7

10 Beta brownorum 8

11 Beta brownorum 9

12 Beta rutilans- 1

13 Beta rutilans- 2

14 Beta rutilans- 3

15 Beta rutilans- 4

16 Beta rutilans- 5

17 Beta rutilans- 6

18 Beta rutilans - 7

19 Beta rutilans - 8

20 Beta ubens | Kalimantan

21 Beta burdigala | Pulau Bangka

22 Beta lividia | Malaysia

23 Beta ideia | Kalimantan Selatan

32.28 27.72 23.66 16.34 1010 27.0029674 24.3923442 23.1454009 25.5192878 337 42.1364985 24.6290801 19.2878338 13.9465875

32.87 27.03 24.16 15.94 1010 27.5964392 23.7388724 23.1454009 25.5192878 337 42.1364985 24.6290801 19.2878338 13.9465875

32.77 27.13 24.16 15.94 1010 27.5964392 23.7388724 23.1454009 25.5192878 337 42.1364985 24.6290801 19.2878338 13.9465875

31.78 28.12 23.86 16.24 1010 26.4094955 24.925816 23.1454009 25.5192878 337 42.1364985 24.6290801 19.5845697 13.6498516

31.88 27.82 23.96 16.34 1010 26.4094955 24.925816 22.5519288 26.1127596 337 41.8397626 24.925816 18.9910979 14.2433234

31.98 27.72 23.96 16.34 1010 26.4094955 24.925816 22.5519288 26.1127596 337 41.8397626 24.925816 18.9910979 14.2433234

31.68 28.22 23.86 16.24 1010 26.4094955 24.925816 23.1454009 25.5192878 337 42.1364985 24.6290801 19.5845697 13.6498516

31.88 28.12 23.66 16.34 1010 26.4094955 24.925816 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

31.68 27.82 23.96 16.34 1010 26.4094955 24.925816 22.5519288 26.1127596 337 41.8397626 24.925816 18.9910979 14.2433234

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.28 27.52 24.16 16.04 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.16 15.94 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.06 16.04 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

32.38 27.52 24.26 15.84 1010 27.2997033 24.0356083 23.4421365 25.2225519 337 42.1364985 24.6290801 19.2878338 13.9465875

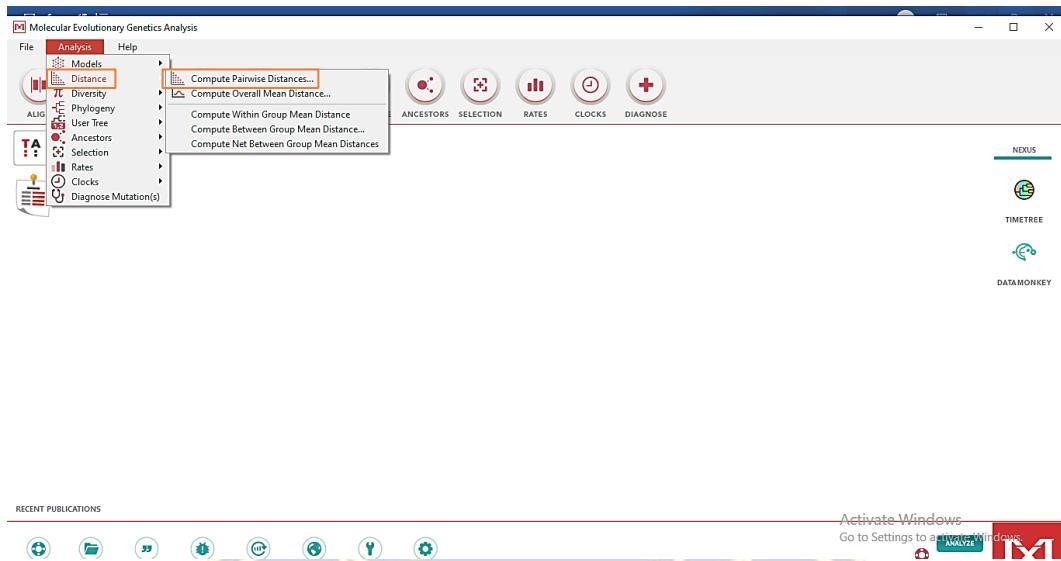
32.97 27.23 24.85 14.95 1010 29.0801187 22.5519288 23.1454009 25.2225519 337 41.8397626 24.6290801 19.5845697 13.6498516

32.67 27.13 25.05 15.15 1010 29.0801187 22.2551928 23.1454009 25.5192878 337 42.1364985 24.6290801 18.9910979 14.5400593

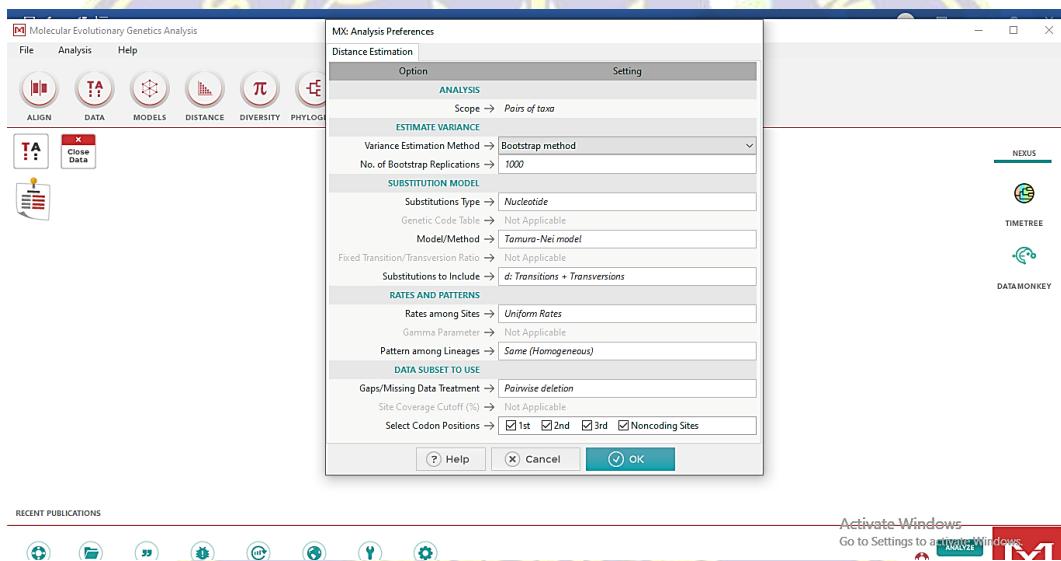
31.29 28.61 24.66 15.45 1010 27.2997033 23.7388724 23.1454009 25.2225519 337 42.1364985 24.6290801 18.94362 14.5400593

33.47 25.64 27.82 13.07 1010 29.3768546 21.3649852 26.1127596 23.1454009 337 42.1364985 24.6290801 19.5845697 13.6498516

Keterangan: Hasil komposisi nukleotida



Keterangan: Minimize hasil komposisi nukleotida, memilih menu Analysis lalu Distance kemudian Compute Pairwise Distances.

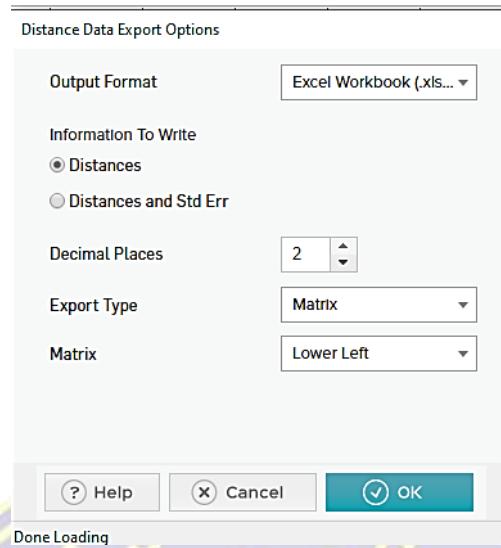


Keterangan: Mengisi format Distance Estimation sesuai dengan gambar di atas lalu OK.

MX: Pairwise Distances (PERCOBAAN REVISI.meg)										
	1	2	3	4	5	6	7	8	9	10
1. Betta brownorum   Borneo		0.065958760	0.066962031	0.069173077	0.085340261	0.086622506	0.070315686	0.074408448	0.085340261	0.044356572
2. Betta brownorum 2	0.0412544100		0.009723318	0.059436785	0.088118891	0.089056173	0.0606761050	0.065552416	0.088118891	0.062897820
3. Betta brownorum 3	0.0423291753			0.0606606038	0.089080967	0.090028024	0.061861560	0.066730689	0.089080967	0.063900750
4. Betta brownorum 4	0.0466577016	0.0348878137		0.0359464098	0.094305082	0.095382217	0.009881475	0.029085064	0.094305082	0.071132773
5. Betta brownorum 5	0.0640113679	0.0674347522	0.0685634353	0.0754271067		0.009551758	0.095325889	0.0937927334	0.000000000	0.086758433
6. Betta brownorum 6	0.0651250106	0.06865648527	0.0896978329	0.0765653334	0.009917526		0.096408352	0.089695724	0.009517588	0.088740241
7. Betta brownorum 7	0.0477439495	0.0359464098	0.0370087499	0.009917450	0.07656409688	0.0777066701		0.0027381316	0.0095325889	0.007228544
8. Betta brownorum 8	0.0520754862	0.0391645224	0.0402240006	0.079781725	0.0788491969	0.0799883897	0.069756067		0.0097927334	0.007749066
9. Betta brownorum 9	0.0640113679	0.0674347522	0.0685634353	0.0754271067	0.000000000	0.009917526	0.07656409688	0.0780491969		0.086758433
10. Betta rutilans- 1	0.0171239336	0.0381373828	0.0391960781	0.0489248026	0.0642265729	0.0653269222	0.0500101789	0.0555071973	0.0642265729	0
11. Betta rutilans- 2	0.0160739148	0.0359387345	0.0369467111	0.0477565501	0.0628909961	0.064824445	0.0484430893	0.0532133790	0.0628909961	0.029837970
12. Betta rutilans- 3	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.06503226197	0.0478031283	0.0532594613	0.0619222703	0
13. Betta rutilans- 4	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.06503226197	0.0478031283	0.0532594613	0.0619222703	0
14. Betta rutilans- 5	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.06503226197	0.0478031283	0.0532594613	0.0619222703	0
15. Betta rutilans- 6	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.06503226197	0.0478031283	0.0532594613	0.0619222703	0
16. Betta rutilans- 7	0.0160927550	0.0370482359	0.0381069313	0.0456226907	0.0630608699	0.0641692193	0.0467008076	0.0521425626	0.0630688699	0.029934788
17. Betta rutilans- 8	0.0201660486	0.0402035616	0.0412641313	0.0521014485	0.0653288523	0.066433160	0.0531927538	0.0576133648	0.0653288523	0.009885239
18. Betta uberis   Kalimantan	0.1266456295	0.1367893879	0.1380776752	0.1404365033	0.1339862692	0.1353008324	0.1417442520	0.1480105615	0.1339862692	0.1231654782
19. Betta bundigale   Puleu Bangka	0.1343696094	0.1369402627	0.1382470292	0.1459096818	0.1458216599	0.1471766901	0.1472388658	0.1508915379	0.1458216599	0.1306449247
20. Betta lirida   Malaysia	0.1814533635	0.1761581142	0.1775174553	0.1760540321	0.1917604141	0.1931726800	0.176845659	0.1787011928	0.1917604141	0.177476138
21. Betta ideii   Kalimantan Selatan	0.2436994248	0.2347135044	0.2362391543	0.2453826854	0.2667301145	0.2650363048	0.2470101970	0.2525347830	0.2667301145	0.2346557300
22. Betta compulta   Kalimantan Timur	0.2280333451	0.2310402584	0.2334061195	0.2306726348	0.2573642229	0.2557163009	0.232412595	0.239180208	0.2573642229	0.2241251286
23. Betta midas   Kalimantan Barat	0.2179301101	0.2163656883	0.2178421792	0.2249825765	0.2470054448	0.248568788	0.2263524903	0.2320275717	0.2470054448	0.2134401588
24. Betta ocellata   Kalimantan Timur	0.2519866115	0.2519455166	0.2536234794	0.2484781213	0.2661431431	0.264442088	0.2501375250	0.2572220510	0.2661431431	0.2499092469
25. Betta coccina   Sumatra	0.1785191609	0.1759112835	0.1773062173	0.1716855736	0.1929957327	0.1944403140	0.1730492275	0.1770044334	0.1929957327	0.1800538389
26. Betta akarensis   Borneo	0.2294403539	0.219289749	0.2208191918	0.2264862716	0.2365390544	0.2547559101	0.228039486	0.2335765471	0.2563985044	0.225086341
27. Betta enisae   Kalimantan Barat	0.2237535655	0.2269179491	0.2284586268	0.2265687483	0.2464256803	0.2479570607	0.2280947359	0.2352793775	0.2464256803	0.222182048
28. Betta foerschi   Borneo	0.2355211873	0.2478533281	0.2461937753	0.2275254308	0.2499373942	0.2515906506	0.2290896420	0.2331054262	0.2499373942	0.2374027493

Keterangan: Hasil jarak genetik.

MX: Pairwise Distances (PERCOBAAN REVISI.meg)										
	1	2	3	4	5	6	7	8	9	10
1. Betta brownorum   Borneo		0.065958760	0.066962031	0.069173077	0.085340261	0.086622506	0.070315686	0.074408448	0.085340261	0.044356572
2. Betta brownorum 2	0.0412544100		0.009723318	0.059436785	0.088118891	0.089056173	0.0606761050	0.065552416	0.088118891	0.062897820
3. Betta brownorum 3	0.0423291753			0.0606606038	0.089080967	0.090028024	0.061861560	0.066730689	0.089080967	0.063900750
4. Betta brownorum 4	0.0466577016	0.0348878137		0.0359464098	0.094305082	0.095382217	0.009881475	0.029085064	0.094305082	0.071132773
5. Betta brownorum 5	0.0640113679	0.0674347522	0.0685634353	0.0754271067		0.009551758	0.095325899	0.0937927334	0.000000000	0.086758433
6. Betta brownorum 6	0.0651250106	0.06865648527	0.0896978329	0.0765653334	0.009917526		0.096408352	0.089695724	0.009517588	0.088740241
7. Betta brownorum 7	0.0477439495	0.0359464098	0.0370087499	0.009917450	0.07656409688	0.0777066701		0.0027381316	0.0095325899	0.007228544
8. Betta brownorum 8	0.0520754862	0.0391645224	0.0402240006	0.079781725	0.0788491969	0.0799883897	0.069756067		0.0097927334	0.007749066
9. Betta brownorum 9	0.0640113679	0.0674347522	0.0685634353	0.0754271067	0.000000000	0.009917526	0.07656409688	0.0780491969		0.086758433
10. Betta rutilans- 1	0.0171239336	0.0381373828	0.0391960781	0.0489248026	0.0642265729	0.0653269222	0.0500101789	0.0555071973	0.0642265729	0
11. Betta rutilans- 2	0.0160739148	0.0359387345	0.0369467111	0.0477565501	0.0628909961	0.064824445	0.0484430893	0.0532133790	0.0628909961	0.029837970
12. Betta rutilans- 3	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.0630226197	0.0478031283	0.0532594613	0.0619222703	0
13. Betta rutilans- 4	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.0630226197	0.0478031283	0.0532594613	0.0619222703	0
14. Betta rutilans- 5	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.0630226197	0.0478031283	0.0532594613	0.0619222703	0
15. Betta rutilans- 6	0.0150672639	0.0359669678	0.0370256632	0.0467177520	0.0619222703	0.0630226197	0.0478031283	0.0532594613	0.0619222703	0
16. Betta rutilans- 7	0.0160927550	0.0370482359	0.0381069313	0.0456226907	0.0630608699	0.0641692193	0.0467008076	0.0521425626	0.0630688699	0.029934788
17. Betta rutilans- 8	0.0201660486	0.0402035616	0.0412641313	0.0521014485	0.0653288523	0.066433160	0.0531927538	0.0576133648	0.0653288523	0.009885239
18. Betta uberis   Kalimantan	0.1266456295	0.1367893879	0.1380776752	0.1404365033	0.1339862692	0.1353008324	0.1417442520	0.1480105615	0.1339862692	0.1231654782
19. Betta bundigale   Puleu Bangka	0.1343696094	0.1369402627	0.1382470292	0.1459096818	0.1458216599	0.1471766901	0.1472388658	0.1508915379	0.1458216599	0.1306449247
20. Betta lirida   Malaysia	0.1814533635	0.1761581142	0.1775174553	0.1760540321	0.1917604141	0.1931726800	0.176845659	0.1787011928	0.1917604141	0.177476138
21. Betta ideii   Kalimantan Selatan	0.2436994248	0.2347135044	0.2362391543	0.2453826854	0.2667301145	0.2650363048	0.2470101970	0.2525347830	0.2667301145	0.2346557300
22. Betta compulta   Kalimantan Timur	0.2280333451	0.2310402584	0.2334061195	0.2306726348	0.2573642229	0.2557163009	0.232412595	0.239180208	0.2573642229	0.2241251286
23. Betta midas   Kalimantan Barat	0.2179301101	0.2163656883	0.2178421792	0.2249825765	0.2470054448	0.248568788	0.2263524903	0.2320275717	0.2470054448	0.2134401588
24. Betta ocellata   Kalimantan Timur	0.2519866115	0.2519455166	0.2536234794	0.2484781213	0.2661431431	0.2644442088	0.2501375250	0.2572220510	0.2661431431	0.2499092469
25. Betta coccina   Sumatra	0.1785191609	0.1759112835	0.1773062173	0.1716855736	0.1929957327	0.1944403140	0.1730492275	0.1770044334	0.1929957327	0.1800538389
26. Betta akarensis   Borneo	0.2294403539	0.219289749	0.2208191918	0.2264862716	0.2365390544	0.2547559101	0.228039486	0.2335765471	0.2563985044	0.225086341
27. Betta enisae   Kalimantan Barat	0.2237535655	0.2269179491	0.2284586268	0.2265687483	0.2464256803	0.2479570607	0.2280947359	0.2352793775	0.2464256803	0.222182048
28. Betta foerschi   Borneo	0.2355211873	0.2478533281	0.2461937753	0.2275254308	0.2499373942	0.25159				



Keterangan: Mengatur Distance Data Export Options seperti gambar di atas.

