# Cyanobacteria Dolichospermum Group Collapse

One size? 7.27-24.00 µm ESD

## References for deciding on groupings:

Add Menden-Deuer & Lessard

Olenina et al. 2003: Re: a centric diatom: T. baltica varies considerably in diameter (20-100 μm). Factors for three size groups (small, medium, and large) were calculated according to the common distribution of cell size

## Code

### CYANOBACTERIA DOLICHOSPERMUM

taxaCyD <- subset(volbio\_all, select = c(samp\_ev, exp, rep, mag, Group, type, grp\_sz, esd, counts\_per\_ml, bio\_per\_vol\_pgc\_ml)) %>%

mutate(totalCPM=counts\_per\_ml)

taxaCyD$szesd <- paste(taxaCyD$grp\_sz, taxaCyD$esd)

taxaCyD <- filter(taxaCyD, type =='dolichospermum' )

taxaCyD <- subset(taxaCyD,totalCPM !=0)

taxaCyD <- subset(taxaCyD, select = c(samp\_ev, exp, rep, mag, Group, type, esd, szesd, totalCPM, bio\_per\_vol\_pgc\_ml))

taxaCyD$totalCPM<- formattable(taxaCyD$totalCPM, format="f",digits=2)

taxaCyD$bio\_per\_vol\_pgc\_ml<- formattable(taxaCyD$bio\_per\_vol\_pgc\_ml, format="f",digits=2)

write\_xlsx(taxaCyD, "data/TopTen/Cyanobacteria/taxaCyD.xlsx")

### Add up the counts per ml for each distinct cyanoacteria dolichospermum

size/esd name but keep the esd and biomass columns

taxaCyDlumpC <- aggregate(totalCPM ~ szesd +esd, data = taxaCyD, FUN = sum, na.rm =TRUE)

taxaCyDlumpB <- aggregate(bio\_per\_vol\_pgc\_ml ~ szesd + esd, data = taxaCyD, FUN = sum, na.rm =TRUE)

taxaCyDlump <- merge(taxaCyDlumpC, taxaCyDlumpB, by="szesd")

taxaCyDlump <- subset(taxaCyDlump, select = c(szesd, esd.x, totalCPM, bio\_per\_vol\_pgc\_ml))

colnames(taxaCyDlump)[1] = "Group"

colnames(taxaCyDlump)[2] = "esd"

colnames(taxaCyDlump)[4] = "totalBPM"

write\_xlsx(taxaCyDlump, "data/TopTen/Cyanobacteria/taxaCyDlump.xlsx")

save(taxaCyDlump, file = "data/TopTen/Cyanobacteria/taxaCyDlump.Rdata")

### Make a dot plot of esd and counts

CyDPlot <- subset(taxaCyD, select = c(esd, totalCPM))

p <- ggplot(CyDPlot, aes(x=esd, totalCPM)) +

geom\_point(size=1, color="blue") +

scale\_x\_log10 (n.breaks=10) +

wimGraph()+

theme(axis.text.x = element\_text(angle=90, hjust = 0.5, vjust = 0.2, size = 8))

p + ggtitle("Cyabnobacteria Dolichspermum by ESD")+

theme(plot.title = element\_text(size = 15))



List of ESD measurements

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **esd** | **totalCPM** | **totalBPM** |
| cyanobacteria dolichospermum 4 16 7.27 | 7.27 | 0.49 | 17.73 |
| cyanobacteria dolichospermum 4 40 9.86 | 9.86 | 5.72 | 520.60 |
| cyanobacteria dolichospermum 4 48 10.48 | 10.48 | 0.32 | 34.64 |
| cyanobacteria dolichospermum 4 64 11.54 | 11.54 | 9.59 | 1395.39 |
| cyanobacteria dolichospermum 4 80 12.43 | 12.43 | 1.16 | 211.61 |
| cyanobacteria dolichospermum 6 40 12.93 | 12.93 | 0.05 | 10.15 |
| cyanobacteria dolichospermum 4 120 14.23 | 14.23 | 1.81 | 492.91 |
| cyanobacteria dolichospermum 6 56 14.46 | 14.46 | 0.25 | 72.06 |
| cyanobacteria dolichospermum 6 64 15.12 | 15.12 | 0.22 | 71.59 |
| cyanobacteria dolichospermum 4 160 15.66 | 15.66 | 0.04 | 16.05 |
| cyanobacteria dolichospermum 8 40 15.66 | 15.66 | 0.57 | 208.78 |
| cyanobacteria dolichospermum 6 80 16.29 | 16.29 | 1.21 | 496.17 |
| cyanobacteria dolichospermum 4 240 17.93 | 17.93 | 0.04 | 23.17 |
| cyanobacteria dolichospermum 8 80 19.73 | 19.73 | 2.66 | 1934.83 |
| cyanobacteria dolichospermum 6 200 22.10 | 22.10 | 0.71 | 721.96 |
| cyanobacteria dolichospermum 8 144 24.00 | 24.00 | 0.72 | 938.06 |