Sauropod Tooth Shape Data

Electronic Supplementary Material 5 for:

"First complete sauropod dinosaur skull from the Cretaceous of the Americas and the evolution of sauropod dentition"

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Methods

Datapoints in Figure 4 represent average slenderness indices (SI) and stratigraphic occurences for 19 “prosauropods”, 20 basal sauropods, 11 diplodocoids, and 42 macronarians. Slenderness Index is defined as the ratio of crown length to crown breadth (Upchurch 1998). Crown length was measured from crown-root junction on labial side of tooth; crown width was measured perpendicular to that. For each taxon, we measured all teeth available in the literature. Where the crown-root junction is angled with respect to the long axis of the tooth, measurements were taken from estimated mean extent of enamel. Worn teeth were reconstructed, and very damaged teeth were not included. The data for “prosauropods” are representative, not exhaustive.

Data

The Table below presents a summary of average SI and log (average SI) for each sauropod genus in the analysis, organized major taxonomic group and listed in order of stratigraphic age. Cells are color-coded to match Figure 4; orange = “prosauropods”, yellow = basal sauropods; red = diplodocoids; blue = macronarians. Midpoints were used for uncertain ages. Abbeviations: **B**, basal sauropods; **D**, diplodcoids; **J**, Jurassic; **K**, Cretaceous; **M**, macronarians; **P**, “prosauropods”; **Tr**, Triassic.

group	Genus	Period	Epoch	Age	Ma	SI	log SI
P	*Saturnalia*	Tr	Middle-Late	Ladinian-Carnian	227.5	1.56	0.1931
P	*Azendohsaurus*	Tr	Late	Carnian	224	1.61	0.2072
P	Prosauropoda1	Tr	Late	Carnian?	224	2.17	0.3372
P	*Unayasaurus*	Tr	Late	Carnian-Norian	218.5	1.86	0.2695
P	*Mussaurus*	Tr	Late	Norian	215.5	1.68	0.2264
P	*Plateosaurus*	Tr	Late	Norian	215.5	1.67	0.2235
P	*Coloradia*	Tr	Late	Norian	215.5	1.63	0.2113
P	*Melanorosaurus*	Tr	Late	Norian	215.5	1.84	0.2648
P	*Sellosaurus*	Tr	Late	Norian	215.5	1.91	0.2805
P	*Thecodontosaurus*	Tr	Late	Norian-Rhaetian	213.5	2.11	0.3244
P	*Pantydraco*	T-J	Late-Early	Carnian-Hettangian	214.5	1.83	0.2624
P	*Lufengosaurus*	J	Early	Hettangian	204	1.70	0.2315
P	*Massospondylus* (AF)	J	Early	Hettangian-Sinemurian	198.5	2.12	0.3254
P	*Yunnanosaurus*	J	Early	Sinemurian	198.5	1.95	0.2910
P	*Gyposaurus?*	J	Early	Sinemurian	198.5	2.19	0.3404
P	*Massospondylus* (NA)	J	Early	Sinemurian-Pleinsbachian	196	1.69	0.2266
P	*Adeopapposaurus*	J	Early	?	193	1.68	0.2253
P	*Yimenosaurus*	J	Early	?	193	2.43	0.3848
P	*Anchisaurus*	J	Early-Middle	Pliensbachian-Bajocian	183	2.14	0.3304
B	*Vulcanodon*	J	Early	Hettangian	204	1.77	0.2480
B	*Zizhongosaurus*	J	Early	Sinemurian-Pleinsbachian	201	2.05	0.3119
B	*Kunmingosaurus*	J	Early	Sinemurian-Pleinsbachian	201	1.96	0.2915
B	*Barapasaurus*	J	Early	Hettangian-Toarcian	193	2.01	0.3032
B	*Gongxianosaurus*	J	Early	Pliensbachian	192.5	1.45	0.1603
B	*Tazoudasaurus*	J	Early	Toarcian	185	1.61	0.2077
B	*Amygdalodon*	J	Middle	Bajocian	172	1.45	0.1626
B	*Datousaurus*	J	Middle	Bajocian	172	1.91	0.2819

group	Genus	Period	Epoch	Age	Ma	SI	log SI
B	*Shunosaurus*	J	Middle	Bajocian	172	2.31	0.3645
B	*Abrosaurus*	J	Middle	Bajocian	172	1.95	0.2897
B	*Chebsaurus*	J	Middle	?	169.5	2.00	0.3010
B	*Lapparentosaurus*	J	Middle	Bathonian	166.5	1.58	0.1987
B	*Archaeodontosaurus*	J	Middle	Bathonian	166.5	1.40	0.1449
B	*Cardiodon*	J	Middle	Bathonian	166.5	1.52	0.1811
B	*Atlasaurus*	J	Middle	Bathonian-Callovian	164	1.86	0.2701
B	*Omeisaurus*	J	Middle	Bathonian-Callovian	164	2.23	0.3474
B	*Cetiosauriscus*	J	Middle	Callovian	162	1.16	0.0648
B	*Patagosaurus*	J	Middle	Callovian	162	1.47	0.1670
B	*Mamenchisaurus*	J	Late	Oxfordian	156.5	2.42	0.3837
B	*Turiasaurus*	J	Late	Tithonian-Berriasian	144	1.25	0.0953
B	*Jobaria*	K	Early	Hauterivian-Barremian	127	1.36	0.1335
D	*Apatosaurus*	J	Late	Kimmeridgian-Tithonian	149	4.56	0.6588
D	*Dicraeosaurus*	J	Late	Kimmeridgian-Tithonian	149	4.52	0.6554
D	*Diplodocus*	J	Late	Kimmeridgian-Tithonian	149	5.16	0.7124
D	*Barosaurus*	J	Late	Kimmeridgian-Tithonian	149	4.76	0.6776
D	*Amargasaurus*	K	Early	Hauterivian	129.5	4.52	0.6551
D	Dicraeosauridae1	K	Early	Barremian	124	4.27	0.6304
D	Rebbachisauridae1	K	Early	Barremian	124	4.39	0.6425
D	Rebbachisauridae2	K	Early	Barremian	124	4.93	0.6925
D	*Nigersaurus*	K	Early	Aptian-Albian	110	4.96	0.6955
D	*Rebbachisaurus*	K	Early	Albian	105.5	4.49	0.6522
D	*Limaysaurus*	K	Late	Albian-Cenomanian	99	5.23	0.7185
M	*Bellusaurus*	J	Middle-Late	?	159	1.47	0.1681
M	“French” *Bothriospondylus*	J	Late	Oxfordian	156.5	2.49	0.3962
M	*Europasaurus*	J	Late	Kimmeridgian	152.5	2.44	0.3874

group	Genus	Period	Epoch	Age	Ma	SI	log SI
M	*Camarasaurus*	J	Late	Kimmeridgian-Tithonian	149	1.92	0.2832
M	*Brachiosaurus*	J	Late	Kimmeridgian-Tithonian	149	2.33	0.3669
M	Euhelopodidae1	J–K	Late-Early	Tithonian-Berriasian	144	1.71	0.2319
M	Titanosauriformes3	K	Early	Barriasian-Hauterivian	135.5	2.22	0.3458
M	Brachiosaurus2	K	Early	Neocomian	133.5	2.29	0.3607
M	*Phuwiangosaurus*	K	Early	Hauterivian-Valanginian	132	4.37	0.6405
M	*Aragosaurus*	K	Early	Hauterivian	129.5	2.83	0.4524
M	Euhelopodidae4	K	Early	Barremian	127	2.15	0.3321
M	*Ornithopsis*	K	Early	Barremian	124	1.76	0.2467
M	Titanosauriformes6	K	Early	Barremian	124	3.80	0.5798
M	Brachiosaurus3	K	Early	Hauterivian-Aptian	122	1.73	0.2368
M	*Asiatosaurus*	K	Early	?	121.5	1.92	0.2841
M	*Mongolosaurus*	K	Early	?	121.5	3.58	0.5539
M	Euhelopodidae2	K	Early	?	121.5	1.90	0.2776
M	*Euhelopus*	K	Early	Barremian-Aptian	121	2.50	0.3988
M	*Brachiosaurus1*	K	Early	Barremian-Aptian	119.5	2.13	0.3286
M	Texas *Pleurocoelus*	K	Early	Aptian	116.5	3.26	0.5132
M	*Karongasaurus*	K	Early	Aptian?	116.5	4.06	0.6083
M	*Malawisaurus*	K	Early	Aptian?	116.5	3.39	0.5302
M	*Chiayusaurus*	K	Early	Barremian-Albian	113	2.01	0.3040
M	*Astrodon*	K	Early	Aptian-Albian	110	2.55	0.4060
M	*Ligabuesaurus*	K	Early	Aptian-Albian	110	1.96	0.2923
M	*Abydosaurus*	K	Early	Albian	104.5	2.79	0.4454
M	Euhelopodidae3	K	Early	Albian	105.5	3.70	0.5678
M	*Borealosaurus*	K	Late	Cenomanian-Turonian	94	3.58	0.5539
M	*Huabeisaurus*	K	Late	?	82	4.39	0.6425
M	*Antarctosaurus*	K	Late	Santonian-Campanian	78	4.94	0.6937
M	*Maxakalisaurus*	K	Late	Campanian-Maastrichtian	74	3.52	0.5466

group	Genus	Period	Epoch	Age	Ma	SI	log SI
M	*Nemegtosaurus*	K	Late	Campanian-Maastrichtian	74	4.36	0.6393
M	Titanosauriformes2	K	Late	Campanian-Maastrichtian	74	3.23	0.5098
M	*Alamosaurus*	K	Late	“Lancian”	68	3.14	0.4969
M	*Laplatasaurus*	K	Late	Maastrichtian	68	3.10	0.4915
M	Titanosauriformes1	K	Late	Maastrichtian	68	3.83	0.5836
M	Titanosauriformes4	K	Late	Maastrichtian	68	3.18	0.5020
M	Titanosauriformes5	K	Late	Maastrichtian	68	4.49	0.6522
M	*Ampelosaurus*	K	Late	Maastrichtian	68	2.71	0.4327
M	*Rapetosaurus*	K	Late	Maastrichtian	68	4.07	0.6096
M	*Titanosaurus*	K	Late	Maastrichtian	68	6.34	0.8021

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