

**Ecological niche differentiation in the Anatolian rock lizards (Genus: *Anatololacerta*)
(Reptilia: Lacertidae) of the Anatolian Peninsula and Aegean Islands**

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SUPPLEMENTARY MATERIALS

Table S1. Raw occurrence records of all *Anatololacerta* species, that are evaluated for this study.
(Coordinates are displayed as decimal degree format)

Species	Latitude	Longitude	Species	Latitude	Longitude
<i>Anatololacerta anatolica</i>	37.7324	26.9934	<i>Anatololacerta pelasgiana</i>	37.4188	28.5707
<i>Anatololacerta anatolica</i>	37.5673	26.1240	<i>Anatololacerta pelasgiana</i>	37.0150	28.7145
<i>Anatololacerta anatolica</i>	39.8056	27.2190	<i>Anatololacerta pelasgiana</i>	36.8223	28.2317
<i>Anatololacerta anatolica</i>	39.7763	26.7874	<i>Anatololacerta pelasgiana</i>	36.7508	28.9925
<i>Anatololacerta anatolica</i>	40.0408	26.7008	<i>Anatololacerta pelasgiana</i>	36.7983	29.6351
<i>Anatololacerta anatolica</i>	40.1613	28.7841	<i>Anatololacerta pelasgiana</i>	36.5759	29.0903
<i>Anatololacerta anatolica</i>	39.9131	29.2478	<i>Anatololacerta pelasgiana</i>	36.3954	29.2043
<i>Anatololacerta anatolica</i>	39.7150	29.2539	<i>Anatololacerta pelasgiana</i>	36.7762	28.6458
<i>Anatololacerta anatolica</i>	40.1010	29.1459	<i>Anatololacerta pelasgiana</i>	36.7929	28.6715
<i>Anatololacerta anatolica</i>	39.5767	28.4850	<i>Anatololacerta pelasgiana</i>	36.8958	28.7759
<i>Anatololacerta anatolica</i>	39.6246	27.0203	<i>Anatololacerta pelasgiana</i>	36.9674	28.7299
<i>Anatololacerta anatolica</i>	27.1149	39.6711	<i>Anatololacerta pelasgiana</i>	36.9685	28.7133
<i>Anatololacerta anatolica</i>	26,8809	39,6231	<i>Anatololacerta pelasgiana</i>	36.9814	28.6564
<i>Anatololacerta anatolica</i>	39.7161	29.9606	<i>Anatololacerta pelasgiana</i>	36.9797	28.5890
<i>Anatololacerta anatolica</i>	39.9775	29.9854	<i>Anatololacerta pelasgiana</i>	37.4525	28.8352
<i>Anatololacerta anatolica</i>	39.7791	29.6855	<i>Anatololacerta pelasgiana</i>	37.7429	29.2670
<i>Anatololacerta anatolica</i>	39.5118	29.8046	<i>Anatololacerta pelasgiana</i>	37.5890	29.1182
<i>Anatololacerta anatolica</i>	39.0416	30.0998	<i>Anatololacerta pelasgiana</i>	36.8628	29.9999
<i>Anatololacerta anatolica</i>	38.5262	28.6370	<i>Anatololacerta pelasgiana</i>	36.5496	29.8853
<i>Anatololacerta anatolica</i>	38.5500	27.4511	<i>Anatololacerta pelasgiana</i>	36.5496	29.8853
<i>Anatololacerta anatolica</i>	38.5560	27.2172	<i>Anatololacerta pelasgiana</i>	37.0713	30.0528
<i>Anatololacerta anatolica</i>	38.3515	27.6754	<i>Anatololacerta pelasgiana</i>	36.7944	29.9973
<i>Anatololacerta anatolica</i>	38.0207	28.0075	<i>Anatololacerta pelasgiana</i>	36.4871	29.6559
<i>Anatololacerta anatolica</i>	39.2541	26.9901	<i>Anatololacerta pelasgiana</i>	36.6972	29.6395
<i>Anatololacerta anatolica</i>	37.9443	27.8917	<i>Anatololacerta pelasgiana</i>	36.5899	29.9968
<i>Anatololacerta anatolica</i>	37.6991	27.1892	<i>Anatololacerta pelasgiana</i>	36.7447	29.9274
<i>Anatololacerta anatolica</i>	38.7442	30.2242	<i>Anatololacerta pelasgiana</i>	36.9075	30.0403
<i>Anatololacerta anatolica</i>	38.8017	29.8300	<i>Anatololacerta pelasgiana</i>	36.5375	29.9397
<i>Anatololacerta anatolica</i>	39.6532	30.3929	<i>Anatololacerta pelasgiana</i>	36.8025	29.6641
<i>Anatololacerta anatolica</i>	39.6323	30.2793	<i>Anatololacerta pelasgiana</i>	36.6486	30.0921
<i>Anatololacerta pelasgiana</i>	37.3839	27.7319	<i>Anatololacerta pelasgiana</i>	36.6037	27.1333
<i>Anatololacerta pelasgiana</i>	37.5031	28.1004	<i>Anatololacerta pelasgiana</i>	36.6108	27.8313
<i>Anatololacerta pelasgiana</i>	37.6473	28.1090	<i>Anatololacerta pelasgiana</i>	36.3571	28.0617
<i>Anatololacerta pelasgiana</i>	37.5105	28.1081	<i>Anatololacerta pelasgiana</i>	37.0976	30.1322
<i>Anatololacerta pelasgiana</i>	37.7381	28.7538	<i>Anatololacerta pelasgiana</i>	37.0805	29.9230
<i>Anatololacerta pelasgiana</i>	36.7408	28.2205	<i>Anatololacerta pelasgiana</i>	37.0226	29.9678
<i>Anatololacerta pelasgiana</i>	36.8537	28.5436	<i>Anatololacerta finikensis</i>	29.6372	36.1153
<i>Anatololacerta pelasgiana</i>	36.5743	29.0917	<i>Anatololacerta finikensis</i>	29.7680	36.2237
<i>Anatololacerta pelasgiana</i>	37.4126	27.6315	<i>Anatololacerta finikensis</i>	29.7885	36.2048
<i>Anatololacerta pelasgiana</i>	28.6047	37.1161	<i>Anatololacerta finikensis</i>	36.2503	29.9393
<i>Anatololacerta pelasgiana</i>	37.4995	27.5428	<i>Anatololacerta finikensis</i>	36.2757	30.1507
			<i>Anatololacerta finikensis</i>	36.9616	30.8546
			<i>Anatololacerta finikensis</i>	30.486	36.392

Species	Latitude	Longitude
<i>Anatololacerta finikensis</i>	36.6408	30.5526
<i>Anatololacerta finikensis</i>	30.4051	36.68172
<i>Anatololacerta finikensis</i>	30.4338	36.67175
<i>Anatololacerta finikensis</i>	30.1604	36.94415
<i>Anatololacerta finikensis</i>	30.1648	37.08531

Species	Latitude	Longitude
<i>Anatololacerta finikensis</i>	36.9822	30.4658
<i>Anatololacerta finikensis</i>	36.7929	30.5744
<i>Anatololacerta finikensis</i>	36.2653	30.1179
<i>Anatololacerta finikensis</i>	36.6383	30.3512
<i>Anatololacerta finikensis</i>	36.7477	30.5594

<i>Anatololacerta finikensis</i>	37.0820	30.1598
<i>Anatololacerta finikensis</i>	36.6836	30.3707
<i>Anatololacerta finikensis</i>	36.8534	30.5869
<i>Anatololacerta finikensis</i>	36.7477	30.5594
<i>Anatololacerta finikensis</i>	36.7526	30.5559
<i>Anatololacerta finikensis</i>	37.1314	30.5487
<i>Anatololacerta ibrahimi</i>	37.2451	29.9259
<i>Anatololacerta ibrahimi</i>	37.6999	30.3442
<i>Anatololacerta ibrahimi</i>	37.3884	30.5347
<i>Anatololacerta ibrahimi</i>	37.5424	30.4820
<i>Anatololacerta ibrahimi</i>	37.8615	30.8444
<i>Anatololacerta ibrahimi</i>	37.6422	30.8693
<i>Anatololacerta ibrahimi</i>	37.9325	30.9341
<i>Anatololacerta ibrahimi</i>	37.5807	31.5491
<i>Anatololacerta ibrahimi</i>	37.6077	31.3728
<i>Anatololacerta ibrahimi</i>	37.6927	31.4059
<i>Anatololacerta ibrahimi</i>	37.0041	32.4452
<i>Anatololacerta ibrahimi</i>	37.3742	31.5123
<i>Anatololacerta ibrahimi</i>	37.5049	34.1161
<i>Anatololacerta ibrahimi</i>	38.2361	31.8798
<i>Anatololacerta ibrahimi</i>	37.1567	31.2013
<i>Anatololacerta ibrahimi</i>	37.0280	31.2427
<i>Anatololacerta ibrahimi</i>	36.9072	31.5291
<i>Anatololacerta ibrahimi</i>	36.8760	31.5495
<i>Anatololacerta ibrahimi</i>	36.6474	32.0413
<i>Anatololacerta ibrahimi</i>	36.5599	32.0053
<i>Anatololacerta ibrahimi</i>	36.6311	31.7607
<i>Anatololacerta ibrahimi</i>	36.5932	31.8926
<i>Anatololacerta ibrahimi</i>	36.4799	32.4513
<i>Anatololacerta ibrahimi</i>	37.3709	31.8541
<i>Anatololacerta ibrahimi</i>	37.2205	31.6381
<i>Anatololacerta ibrahimi</i>	37.1322	31.4753
<i>Anatololacerta ibrahimi</i>	36.3589	32.3746
<i>Anatololacerta ibrahimi</i>	36.4550	32.4634
<i>Anatololacerta ibrahimi</i>	36.2917	32.3323
<i>Anatololacerta ibrahimi</i>	36.7129	32.1890
<i>Anatololacerta ibrahimi</i>	36.2394	32.7013
<i>Anatololacerta ibrahimi</i>	36.2263	32.8194
<i>Anatololacerta ibrahimi</i>	36.3249	32.9510
<i>Anatololacerta ibrahimi</i>	36.2771	33.3805

<i>Anatololacerta ibrahimi</i>	36.8788	33.2812
<i>Anatololacerta ibrahimi</i>	36.1772	32.8106
<i>Anatololacerta ibrahimi</i>	36.1634	32.8329
<i>Anatololacerta danfordi</i>	37.3811	30.5559
<i>Anatololacerta danfordi</i>	37.6053	35.8397
<i>Anatololacerta danfordi</i>	37.6964	36.2068
<i>Anatololacerta danfordi</i>	37.8226	35.9585
<i>Anatololacerta danfordi</i>	37.5203	35.8233
<i>Anatololacerta danfordi</i>	37.9950	36.0905
<i>Anatololacerta danfordi</i>	37.7751	35.6281
<i>Anatololacerta danfordi</i>	37.8621	36.0580
<i>Anatololacerta danfordi</i>	37.5068	35.8587
<i>Anatololacerta danfordi</i>	37.6284	35.8529
<i>Anatololacerta danfordi</i>	37.0163	36.4467
<i>Anatololacerta danfordi</i>	36.5866	33.9194
<i>Anatololacerta danfordi</i>	36.5252	34.1813
<i>Anatololacerta danfordi</i>	36.8482	34.4418
<i>Anatololacerta danfordi</i>	36.9463	34.3425
<i>Anatololacerta danfordi</i>	37.0030	34.5745
<i>Anatololacerta danfordi</i>	37.1502	34.7133
<i>Anatololacerta danfordi</i>	37.4730	34.5630
<i>Anatololacerta danfordi</i>	37.1311	34.5587
<i>Anatololacerta danfordi</i>	36.3417	33.7447
<i>Anatololacerta danfordi</i>	36.3399	33.7087
<i>Anatololacerta danfordi</i>	36.8744	33.2815
<i>Anatololacerta danfordi</i>	37.2631	34.9519

Table S2. Variables used for modeling the distribution of Anatolian rock lizards (*Anatololacerta* sp.)

Variables	Description	Source
Bio1	Annual Mean Temperature	WorldClim 2.1
Bio2	Mean Diurnal Range (Mean of monthly (max temp - min temp))	WorldClim 2.1
Bio3	Isothermality (BIO2/BIO7) (×100)	WorldClim 2.1
Bio4	Temperature Seasonality (standard deviation ×100)	WorldClim 2.1
Bio5	Max Temperature of Warmest Month	WorldClim 2.1
Bio6	Min Temperature of Coldest Month	WorldClim 2.1
Bio7	Temperature Annual Range (BIO5-BIO6)	WorldClim 2.1
Bio8	Mean Temperature of Wettest Quarter	WorldClim 2.1
Bio9	Mean Temperature of Driest Quarter	WorldClim 2.1
Bio10	Mean Temperature of Warmest Quarter	WorldClim 2.1
Bio11	Mean Temperature of Coldest Quarter	WorldClim 2.1
Bio12	Annual Precipitation	WorldClim 2.1
Bio13	Precipitation of Wettest Month	WorldClim 2.1
Bio14	Precipitation of Driest Month	WorldClim 2.1
Bio15	Precipitation Seasonality (Coefficient of Variation)	WorldClim 2.1
Bio16	Precipitation of Wettest Quarter	WorldClim 2.1
Bio17	Precipitation of Driest Quarter	WorldClim 2.1
Bio18	Precipitation of Warmest Quarter	WorldClim 2.1
Bio19	Precipitation of Coldest Quarter	WorldClim 2.1
elev	Elevation derived from the STRM elevation data	WorldClim 2.1
river_dist	Euclidean distance (km) from the nearest point of the perennial river	Gavashelishvili & Tarkhnishvili 2016
lai	Mean leaf area index	Gavashelishvili & Tarkhnishvili 2016

Figure S1. Pearson Correlation matrix among bioclimatic and topographic variables used in the present study.
 (bio 1 to bio 19 indicate bioclimatic variables; elev, river_dist and lai indicate topographic variables)

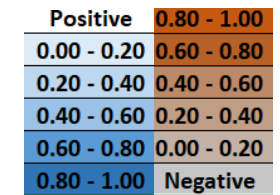
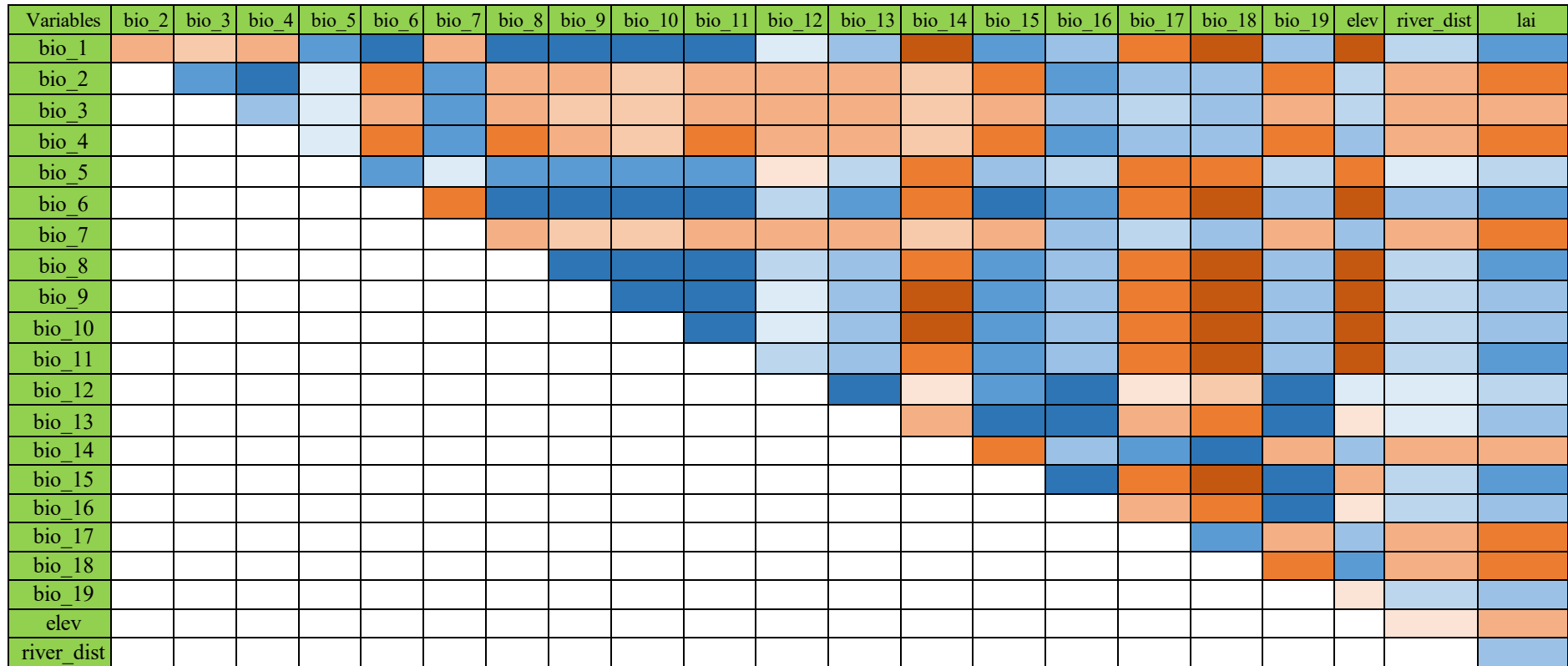
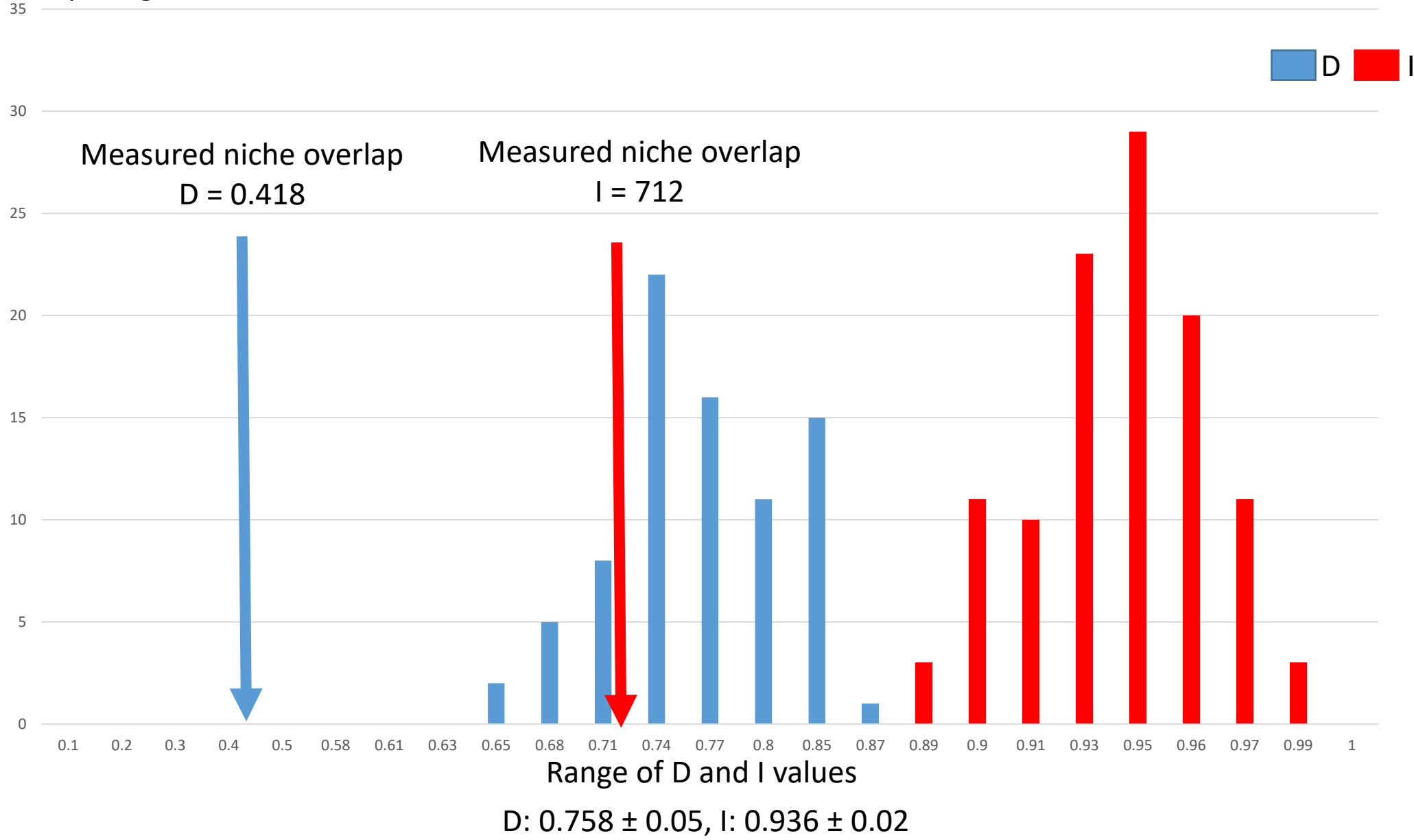
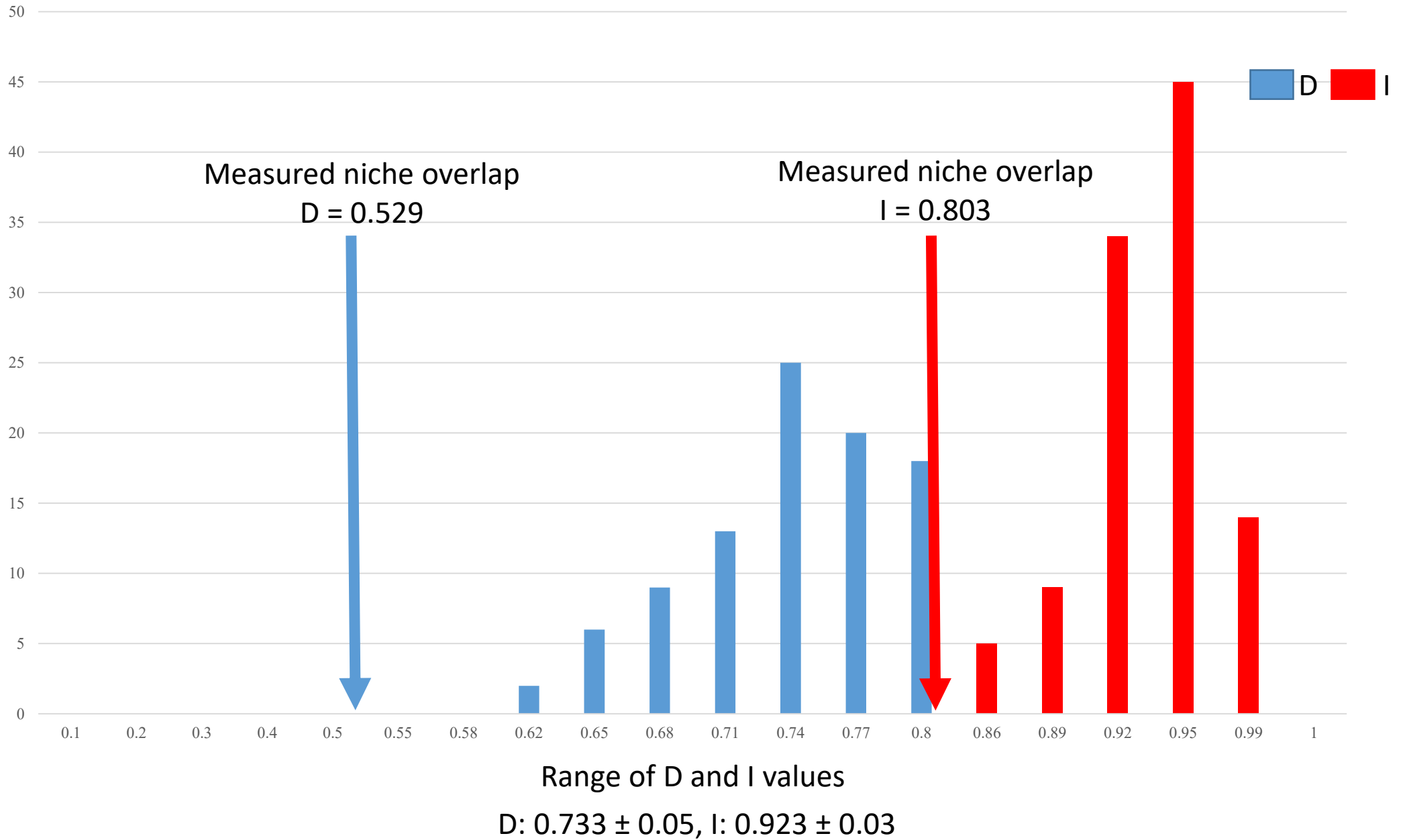


Figure S2. Results of the identity tests and background test. Arrows refer to the actual niche overlaps as calculated by ENMTools (D and I). Columns are calculated by replicates with identity and background test mode (a-j indicate the identity tests and k-t indicate the background tests).

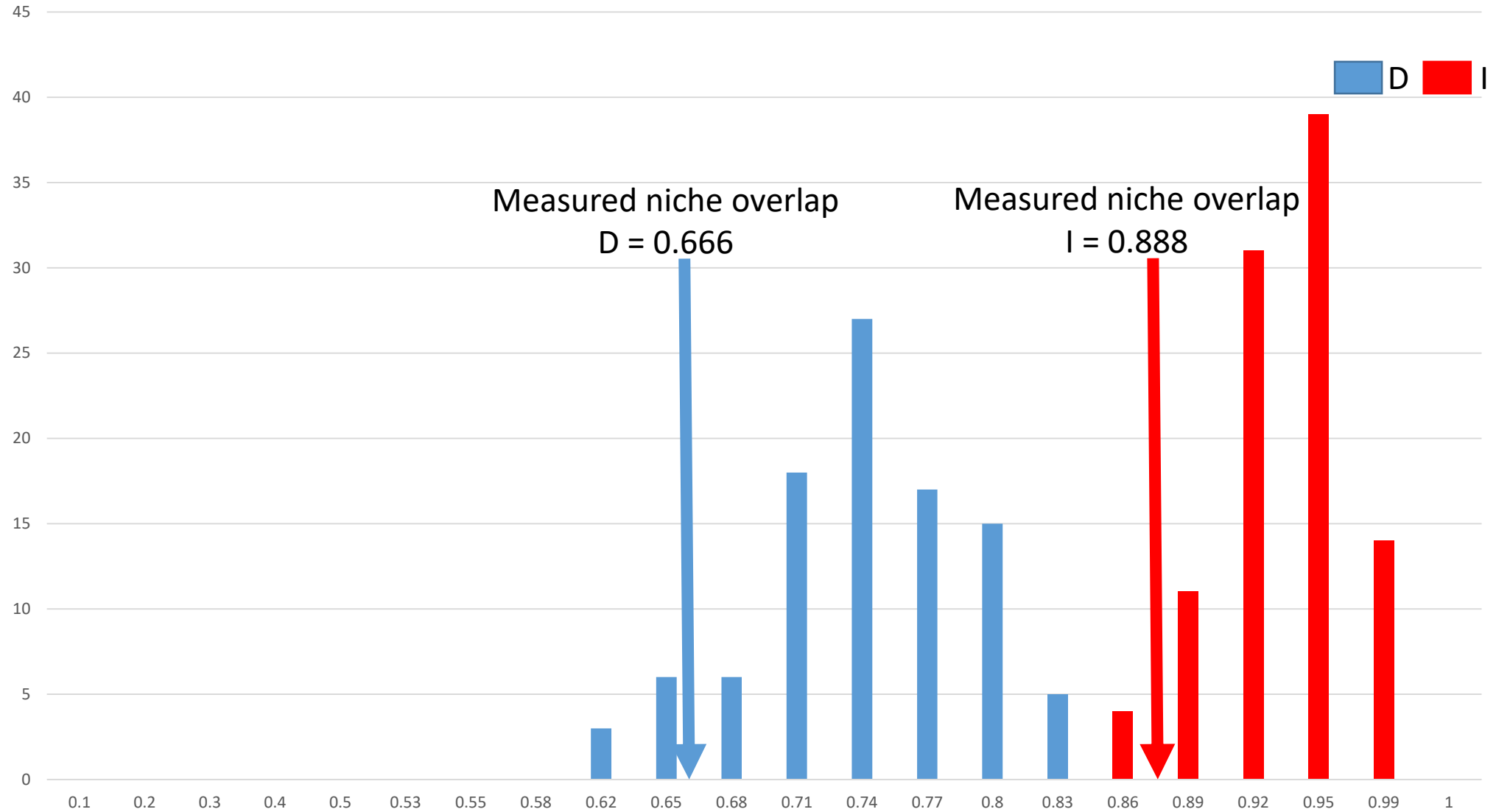
a. A. pelasgiana vs A. anatolica



b. A. pelasgiana vs A. danfordi



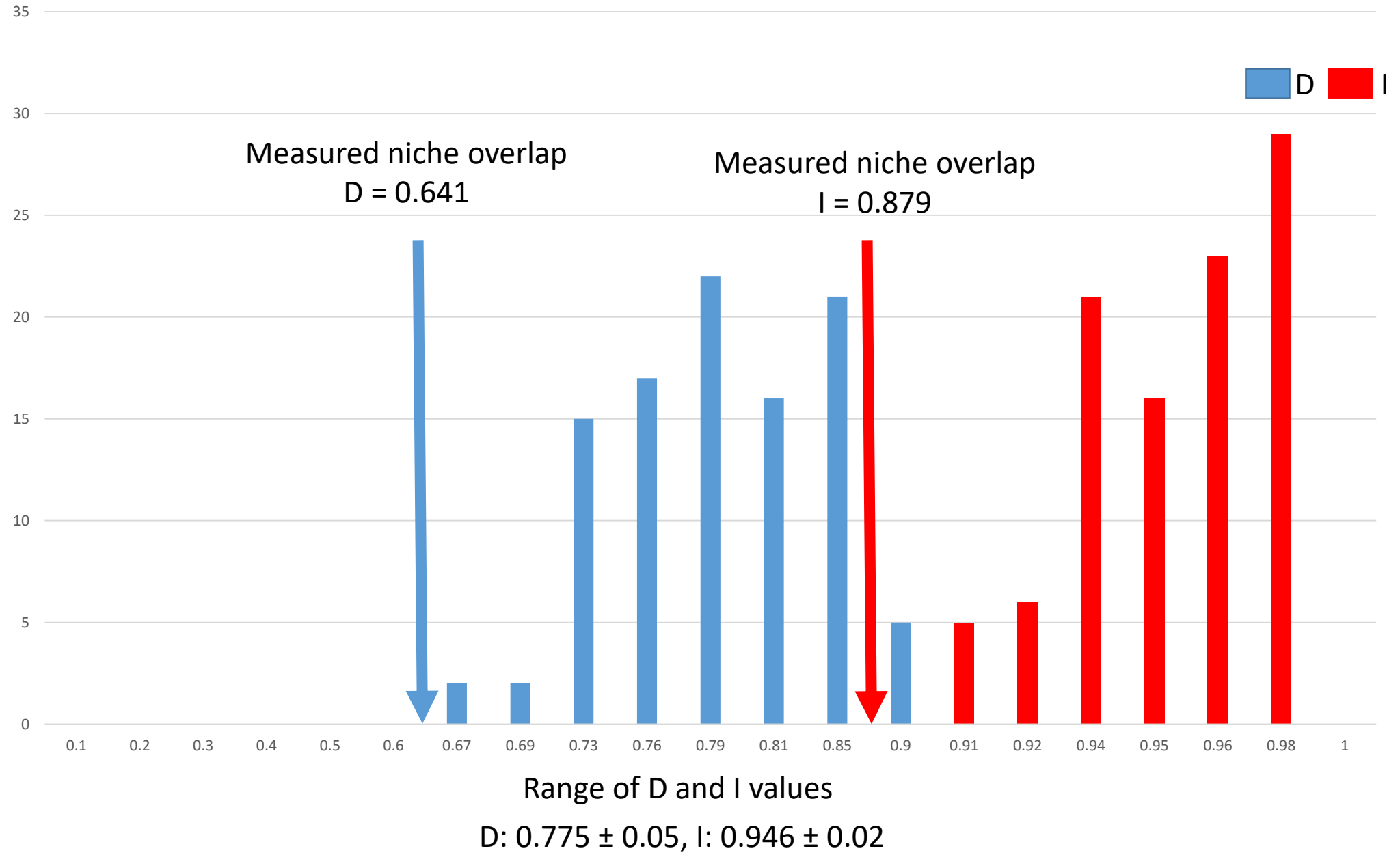
c. A. pelasgiana vs A. finikensis



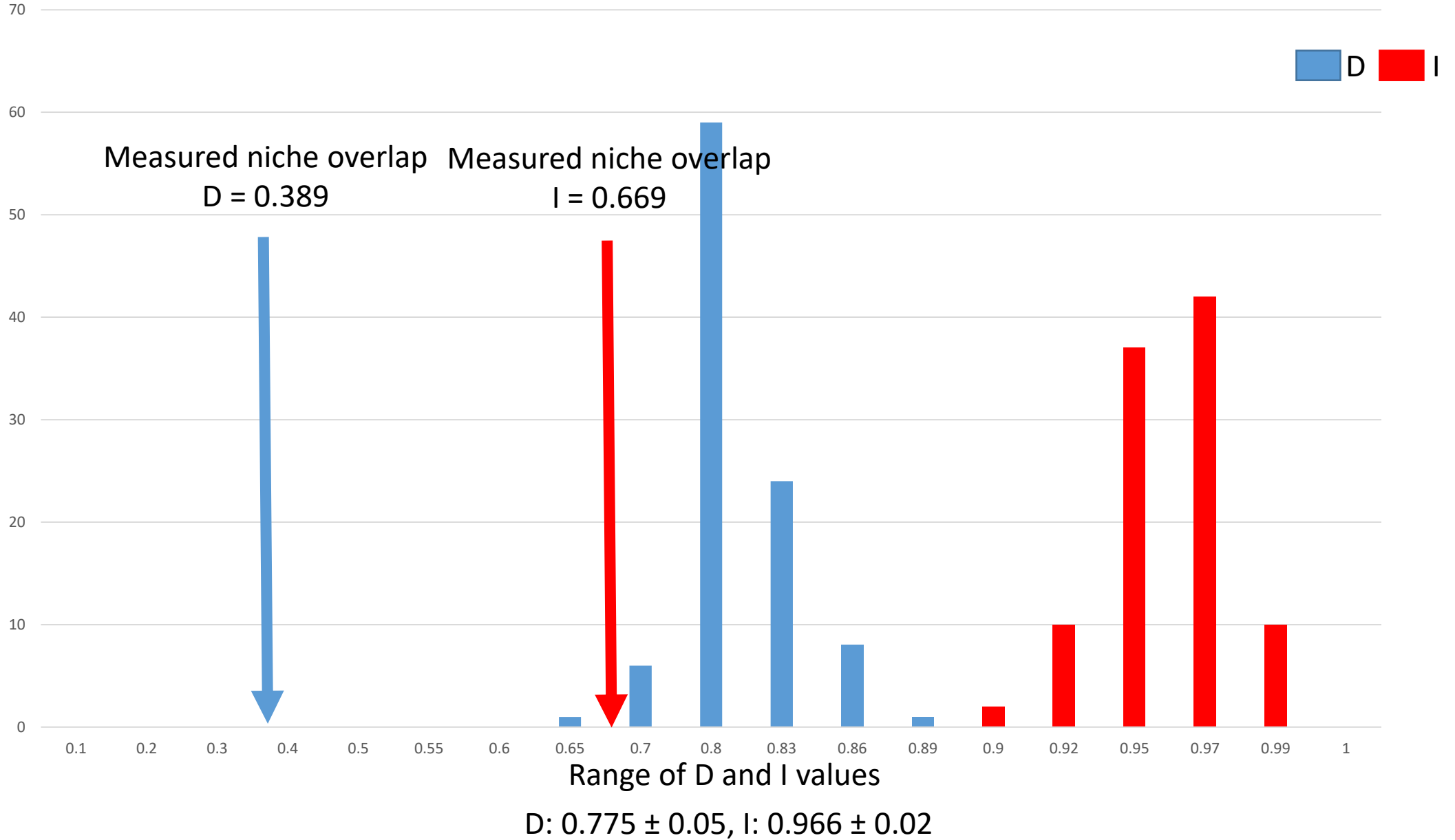
Range of D and I values

D: 0.729 ± 0.05 , I: 0.920 ± 0.03

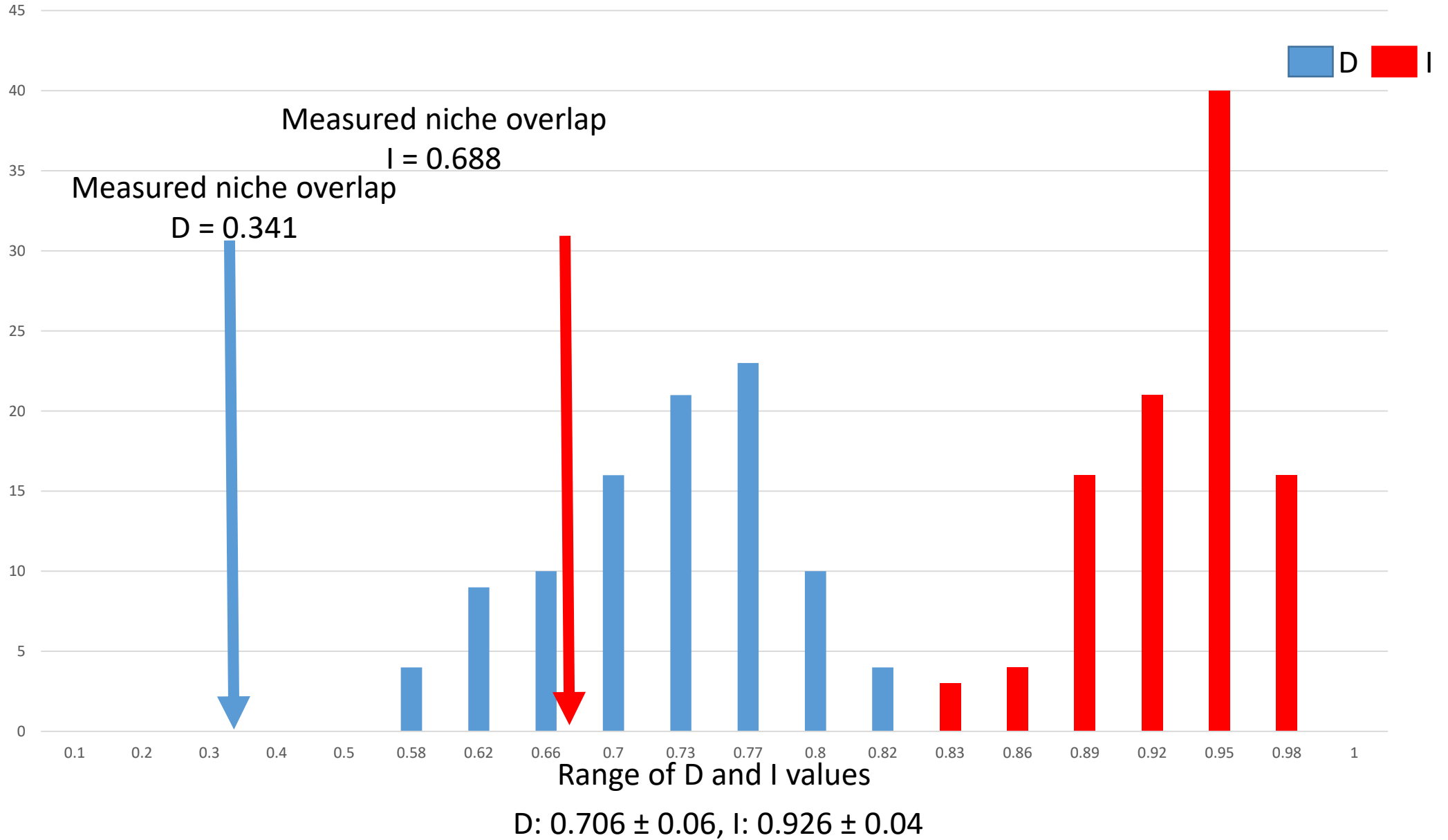
d. A. pelasgiana vs *A. ibrahimi*



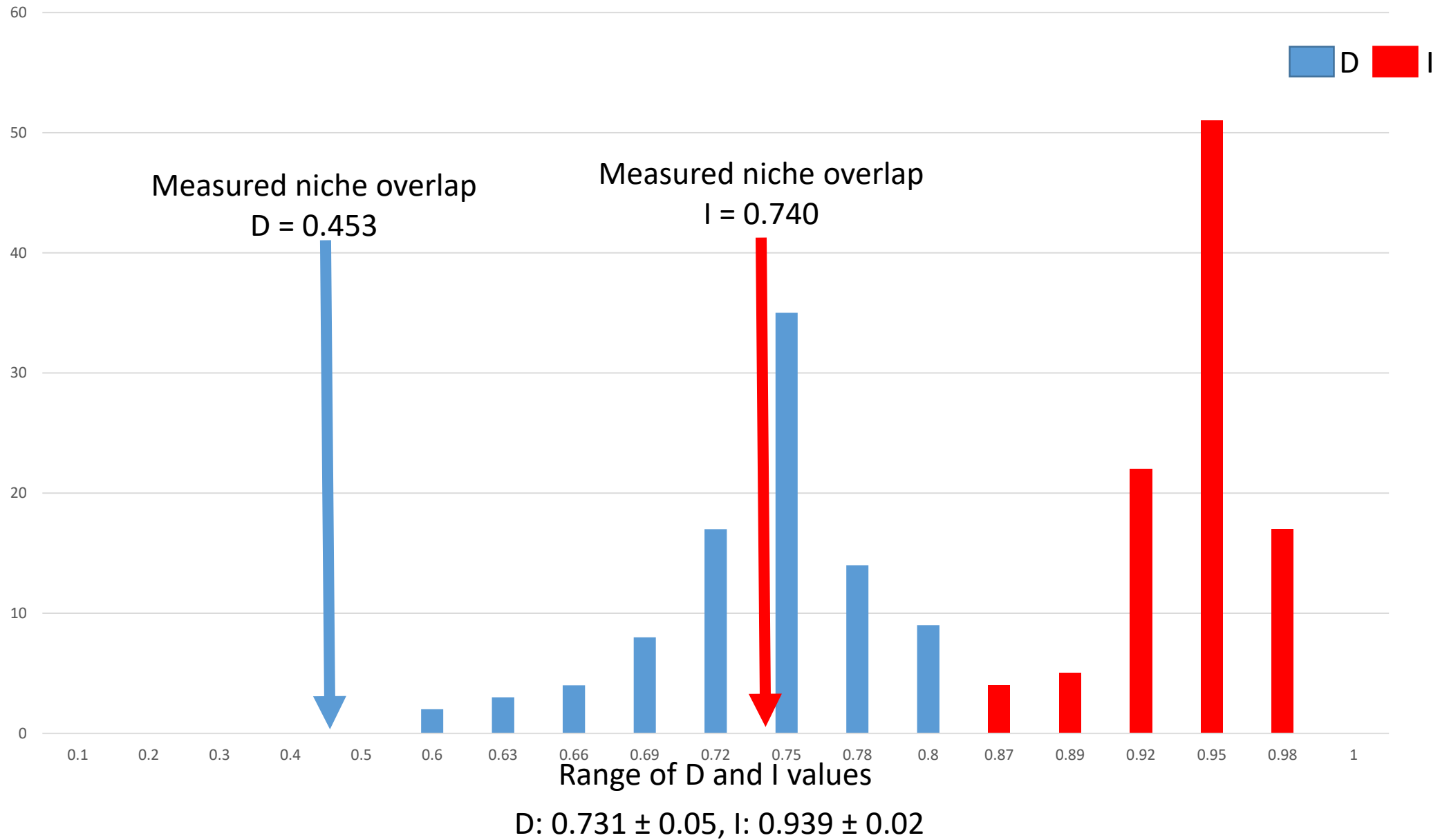
e. A. anatolica vs *A. danfordi*



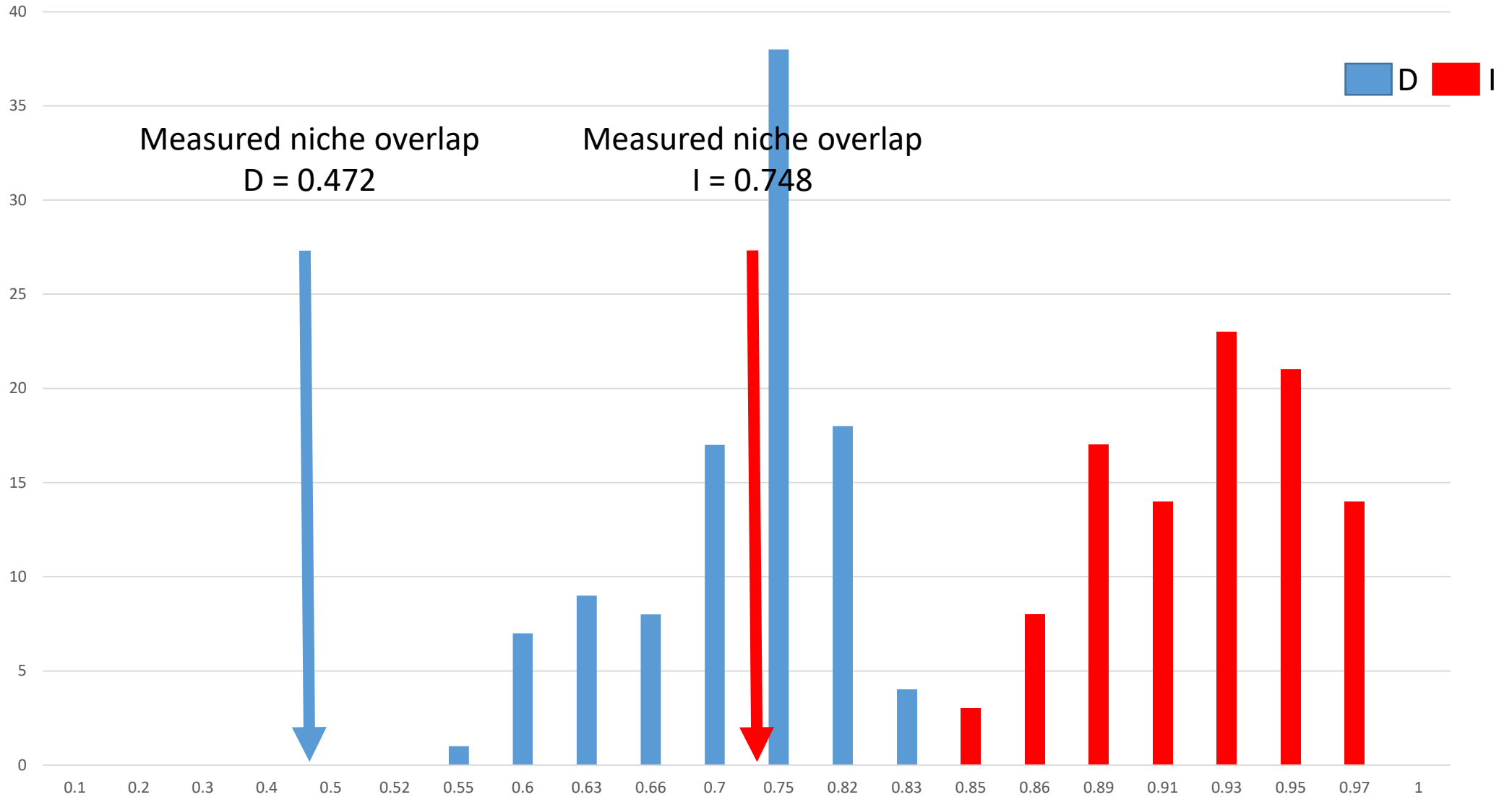
f. A. anatolica vs *A. finikensis*



g. A. anatolica vs *A. ibrahimi*

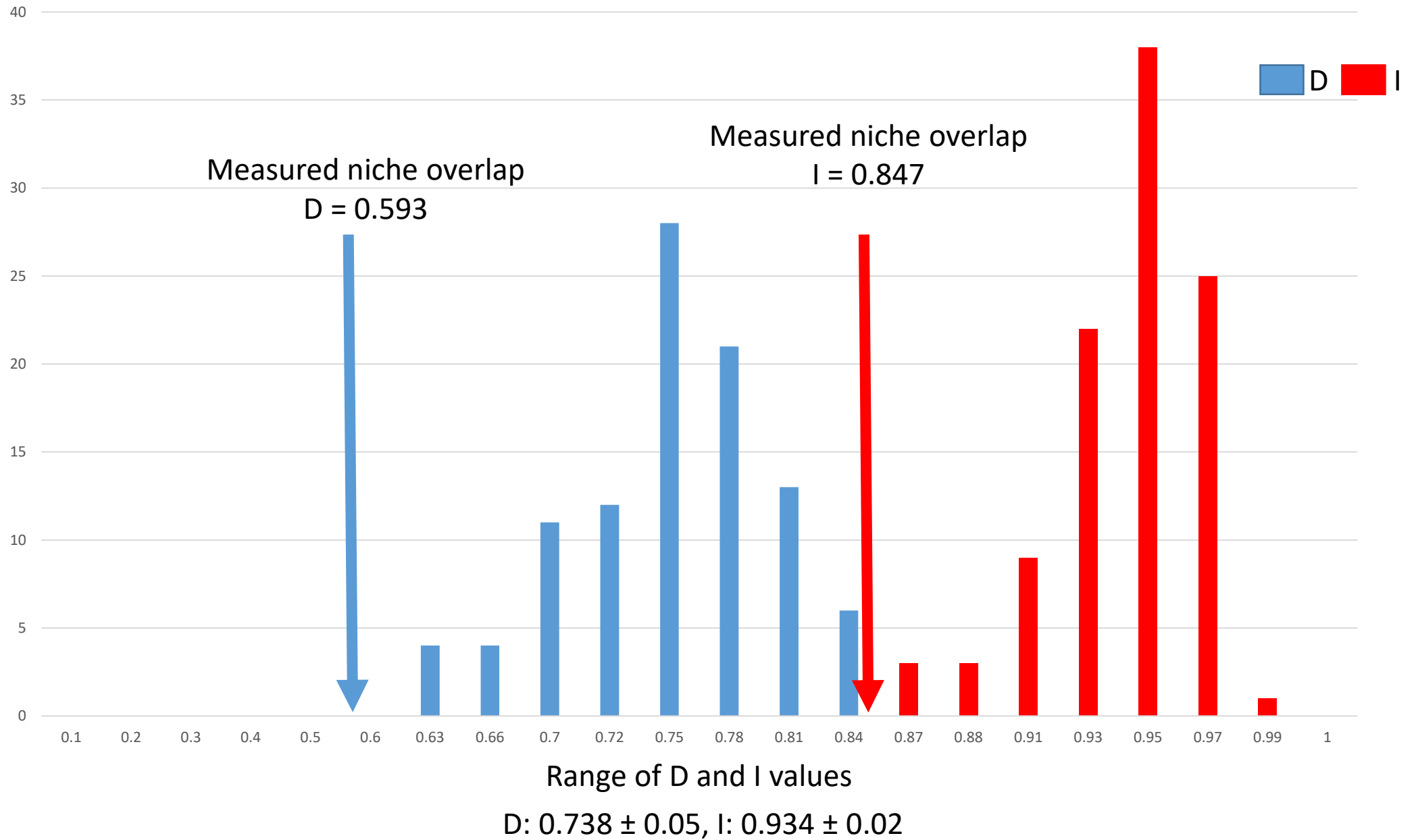


h. A. danfordi vs *A. finikensis*

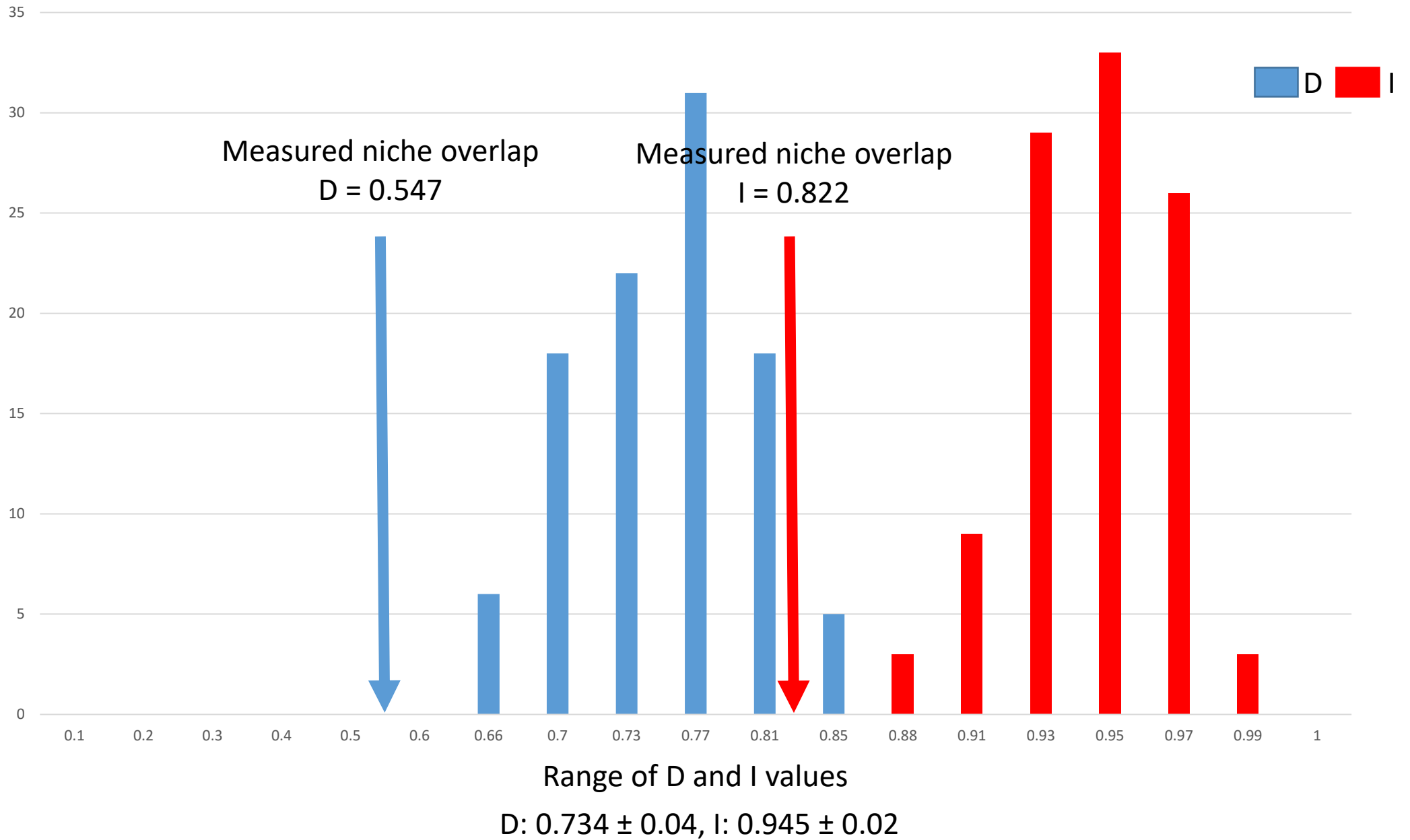


Range of D and I values
D: 0.701 ± 0.06 , I: 0.929 ± 0.04

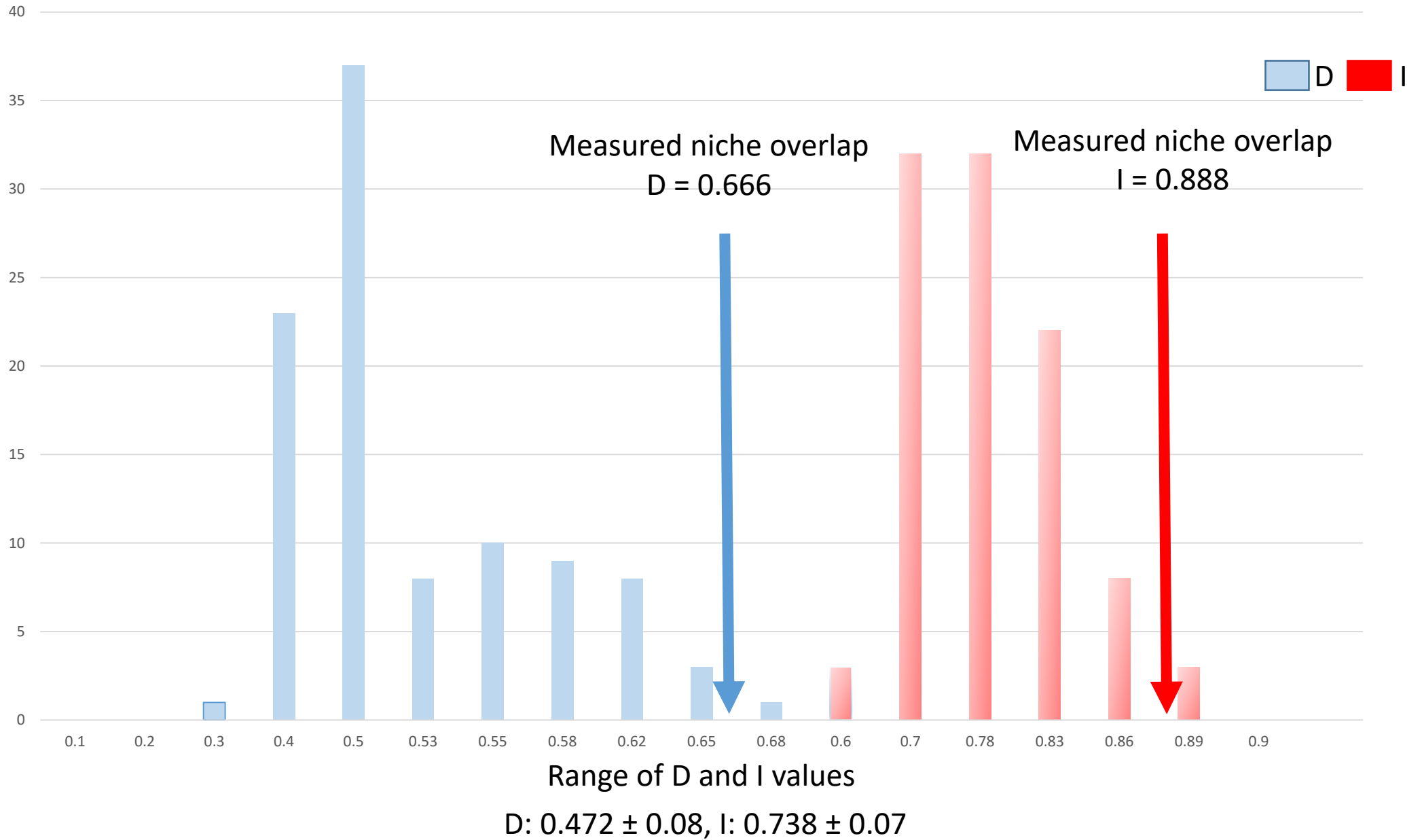
i. A. danfordi vs *A. ibrahimi*



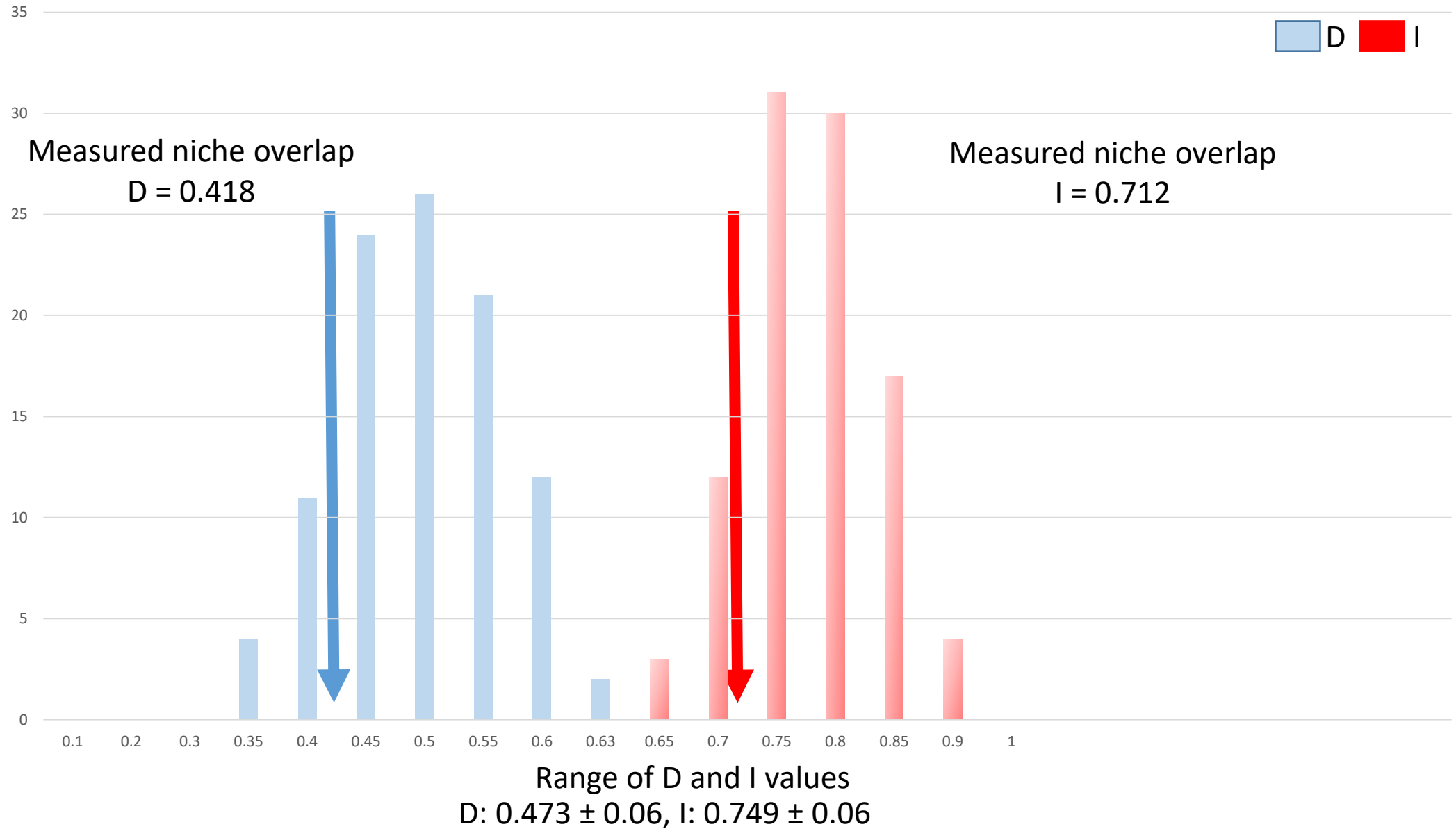
j. A. finikensis vs *A. ibrahimi*



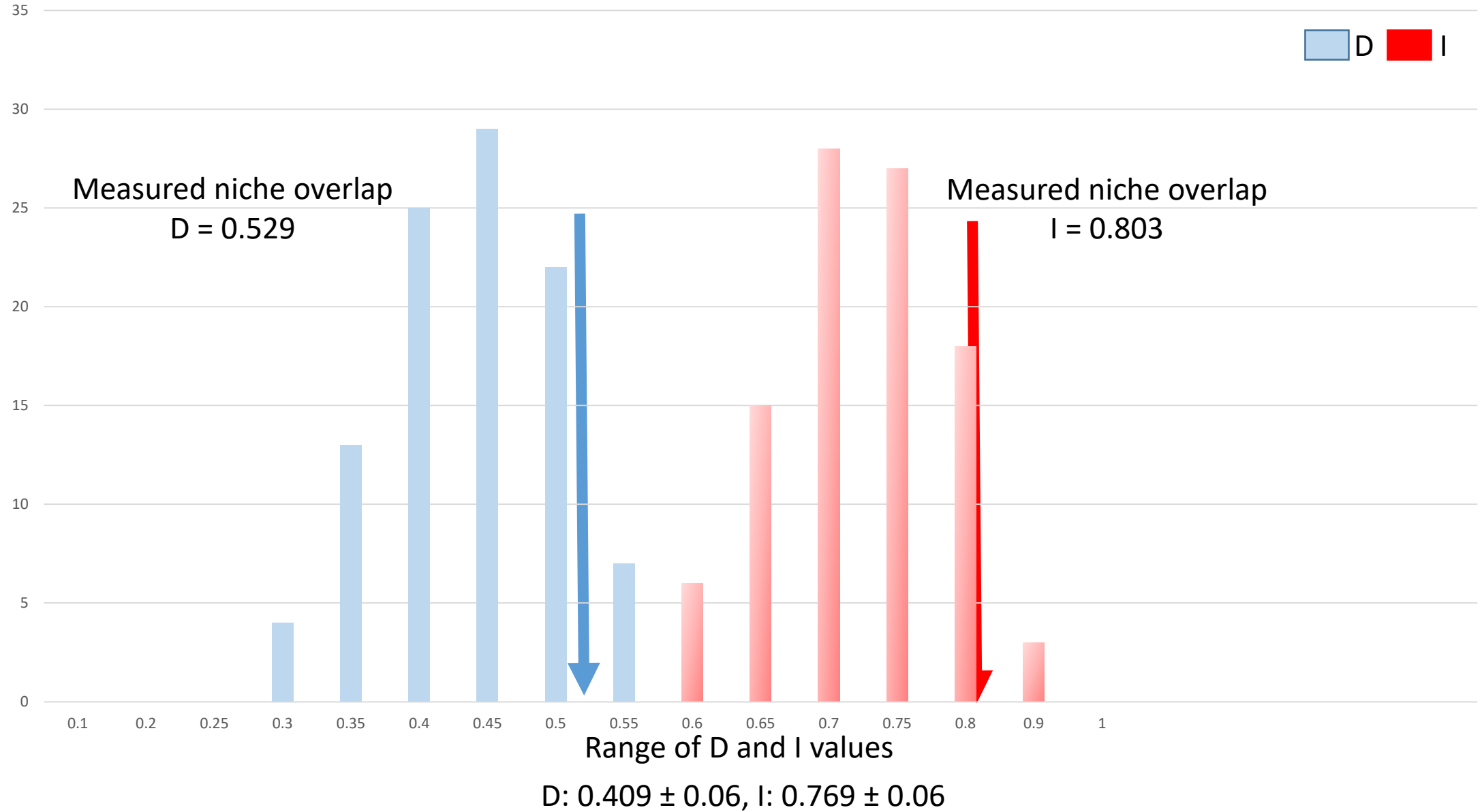
k. A. pelasgiana vs A. finikensis



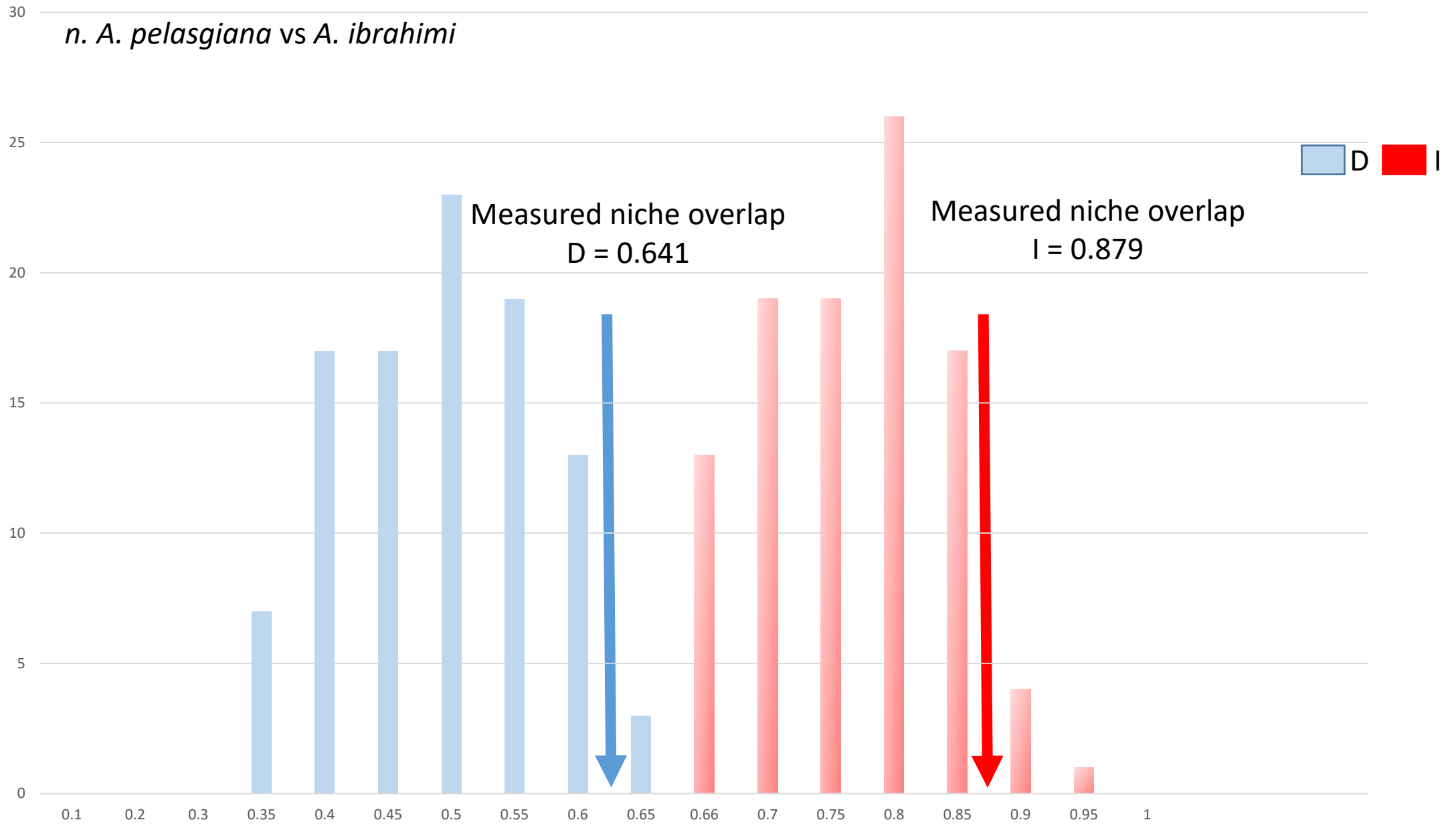
I. A. pelasgiana vs *A. anatolica*



m. A. pelasgiana vs *A. danfordi*



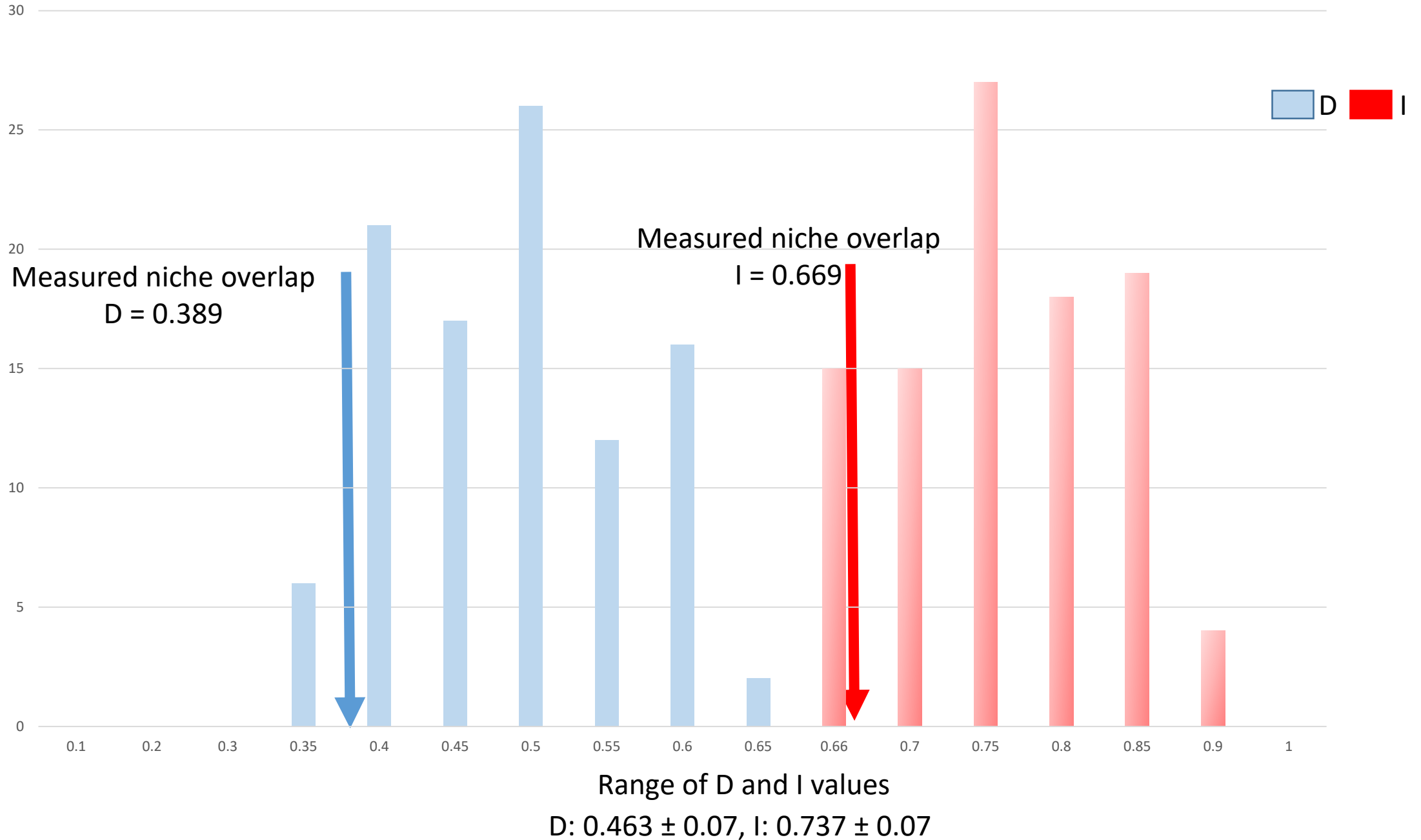
n. A. pelasgiana vs *A. ibrahimi*



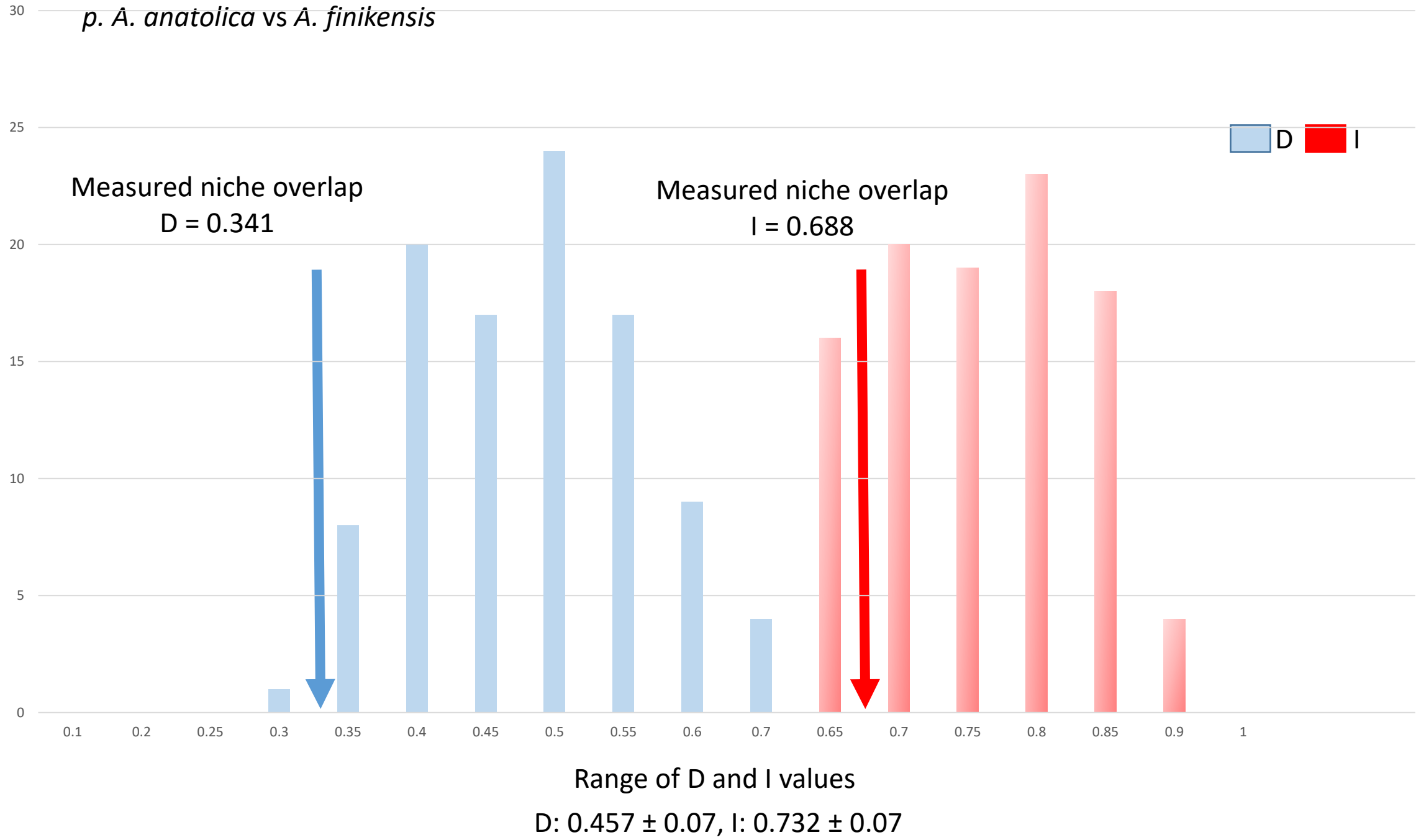
Range of D and I values

D: 0.472 ± 0.06 , I: 0.738 ± 0.08

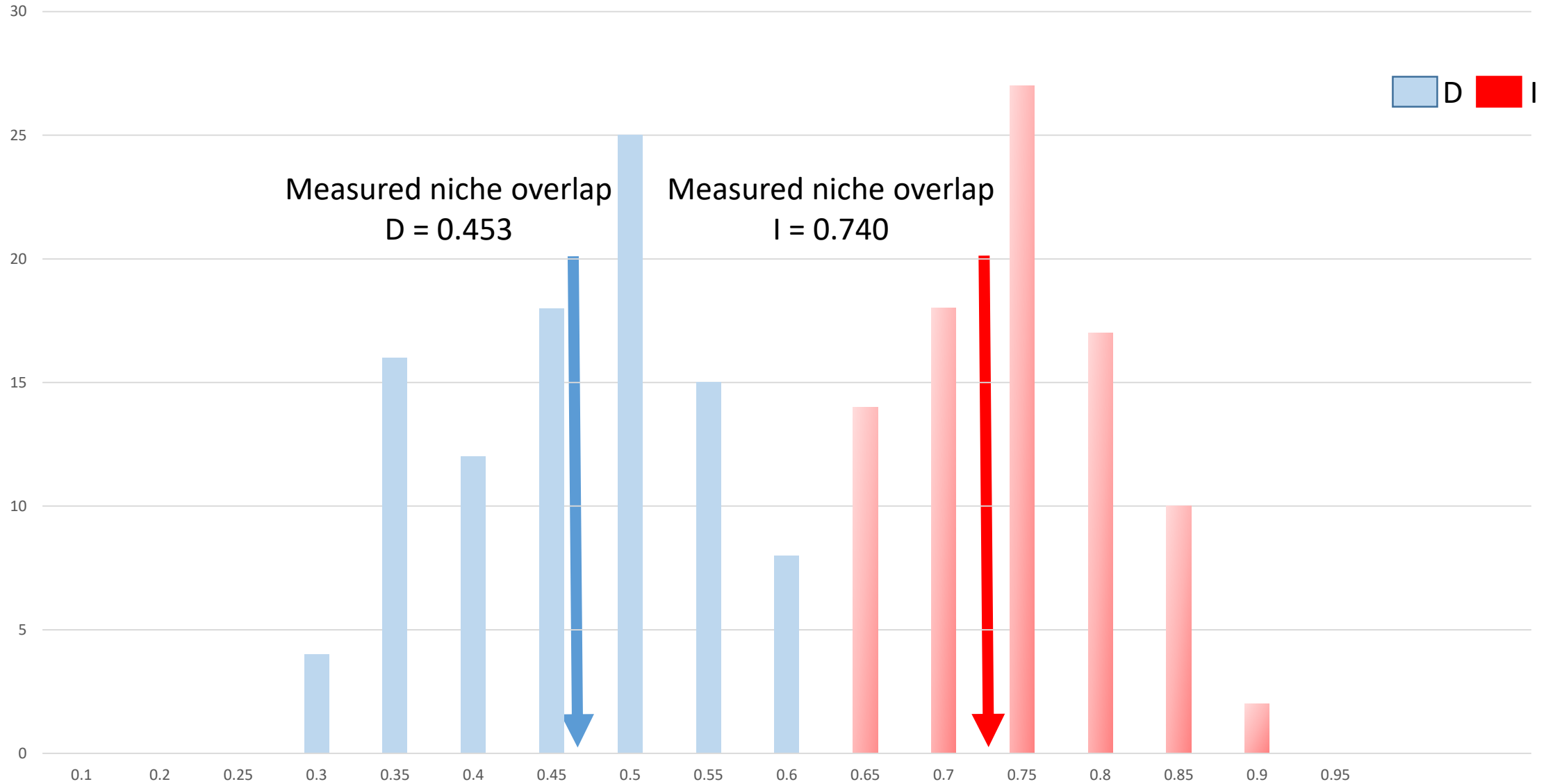
o. A. anatolica vs *A. danfordi*



p. A. anatolica vs *A. finikensis*

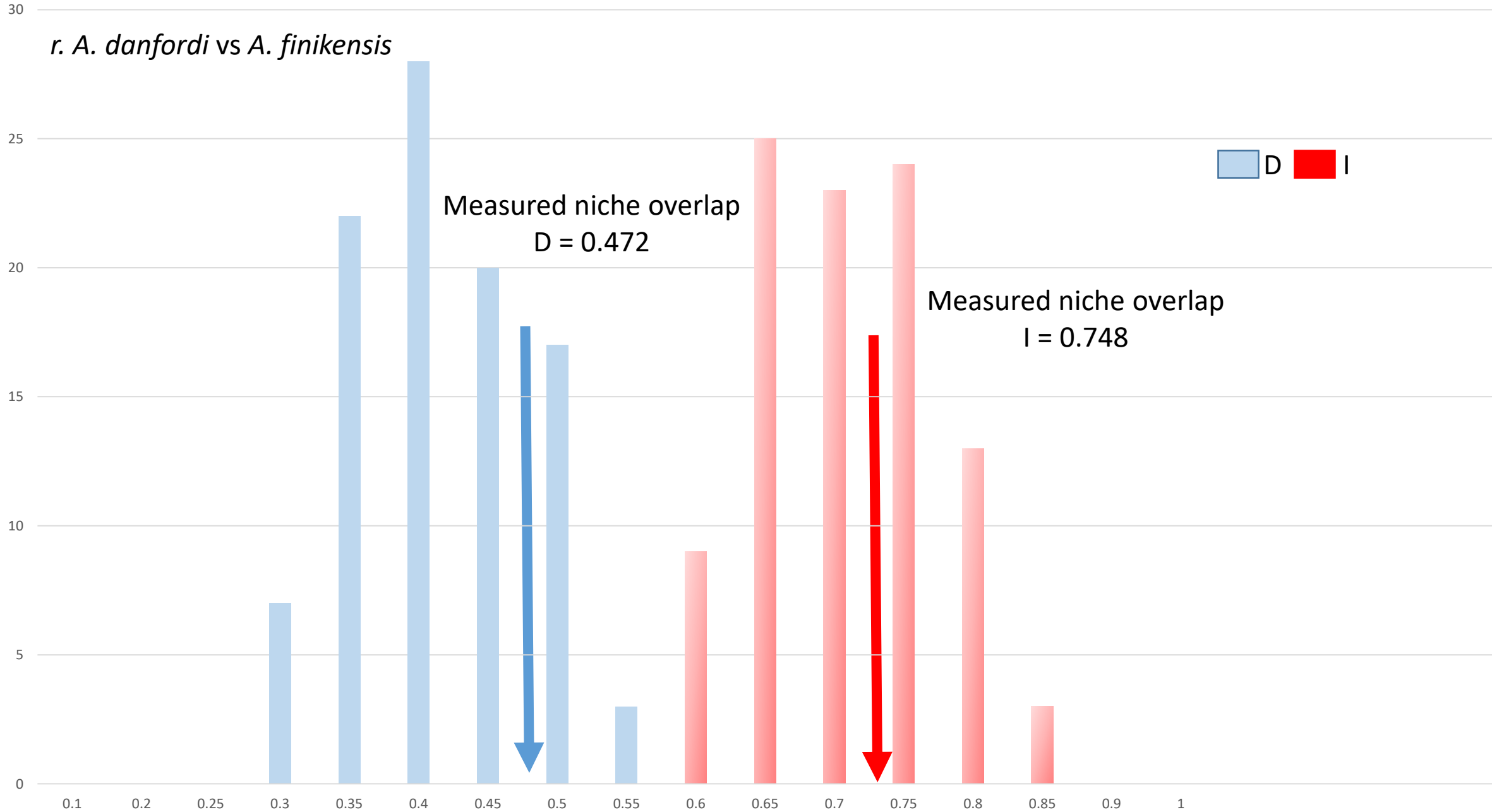


q. A. anatolica vs *A. ibrahimi*



Range of D and I values
D: 0.440 ± 0.08 , I: 0.705 ± 0.08

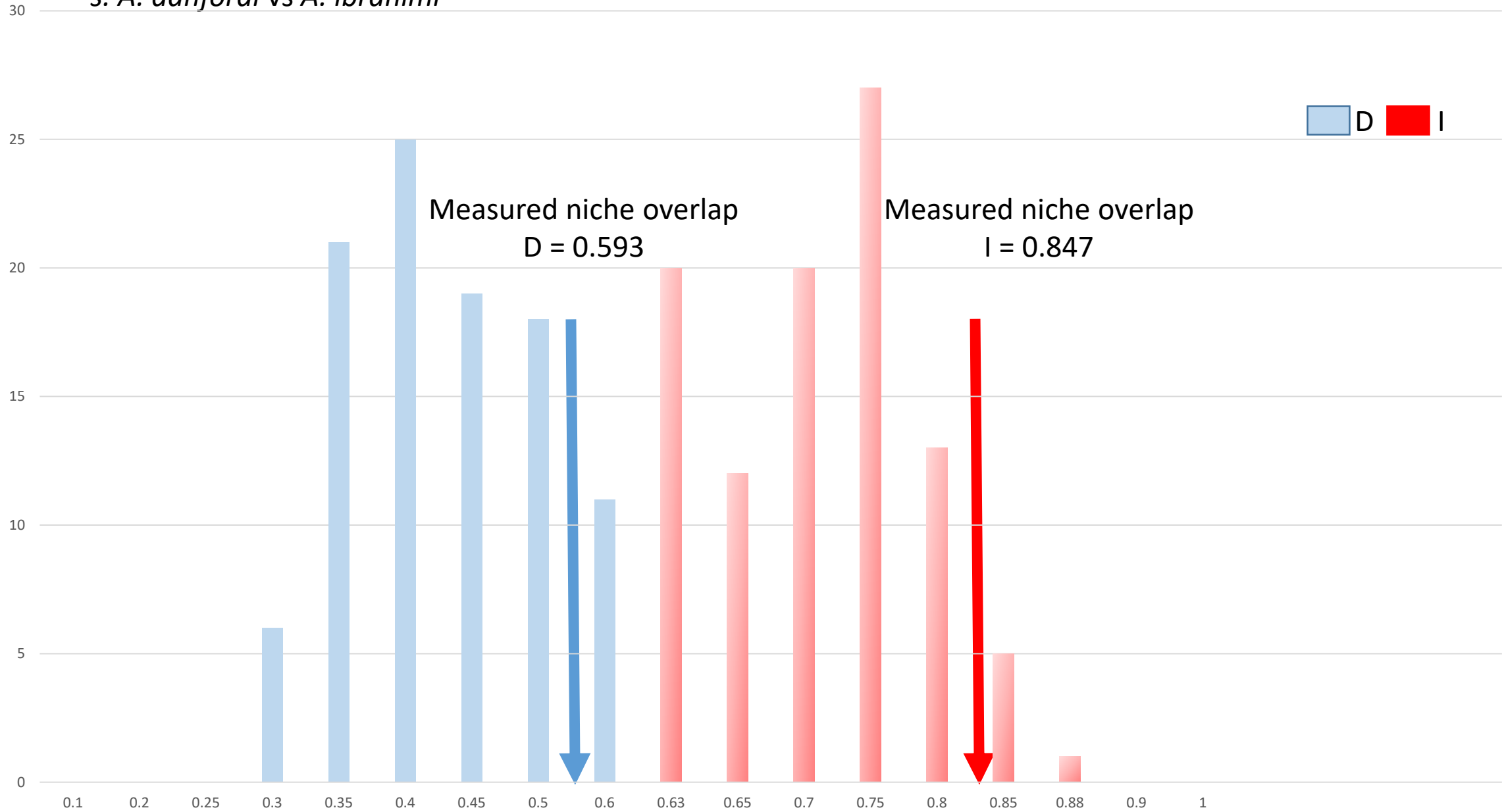
r. A. danfordi vs *A. finikensis*



Range of D and I values

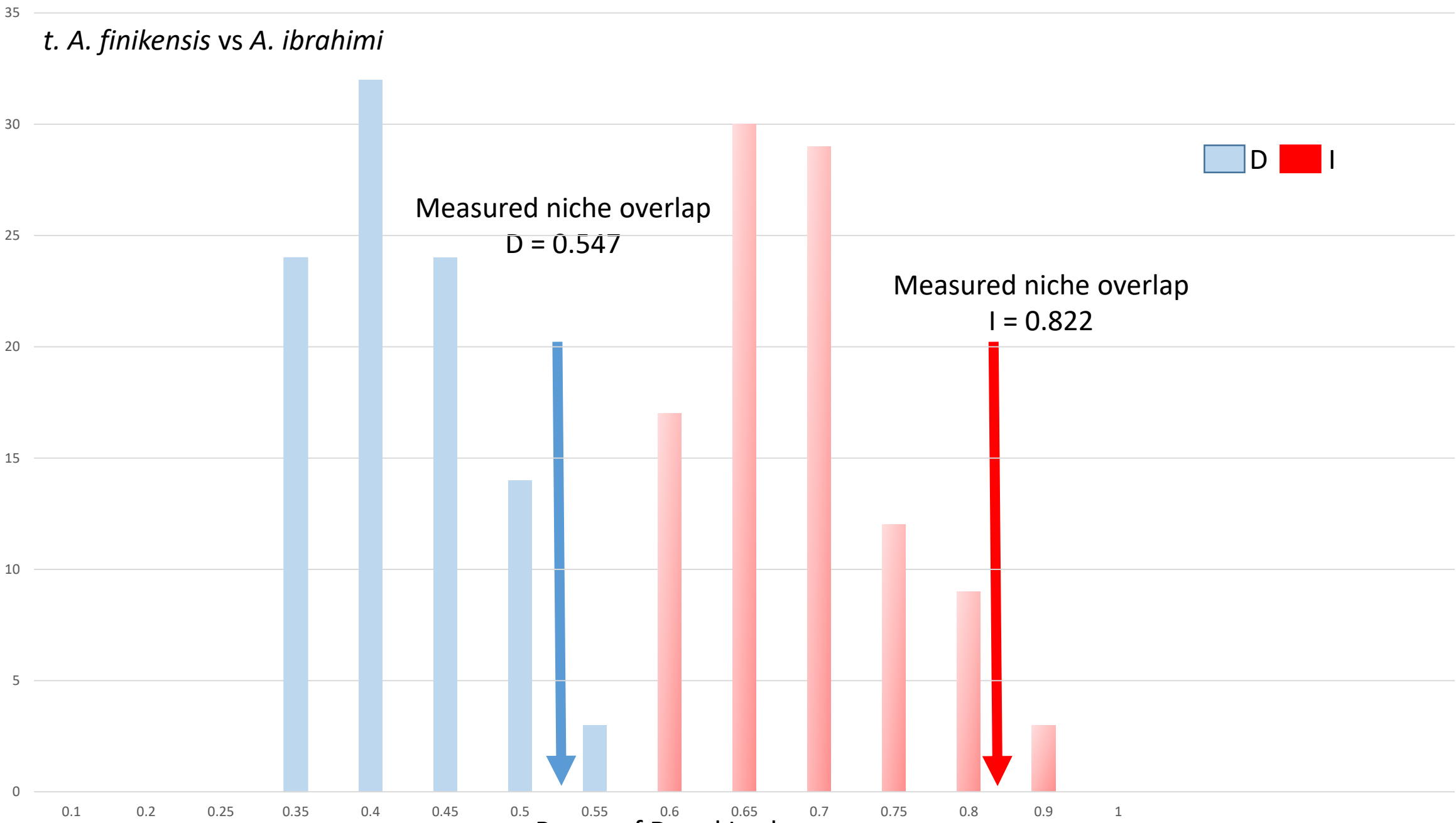
D: 0.393 ± 0.07 , I: 0.676 ± 0.07

s. A. danfordi vs *A. ibrahimi*



Range of D and I values
D: 0.405 ± 0.07 , I: 0.688 ± 0.07

t. A. finikensis vs *A. ibrahimi*



Measured niche overlap

D = 0.547

Measured niche overlap

I = 0.822

Range of D and I values
D: 0.397 ± 0.07 , I: 0.664 ± 0.06