

Annex 5: Statistical data analysis

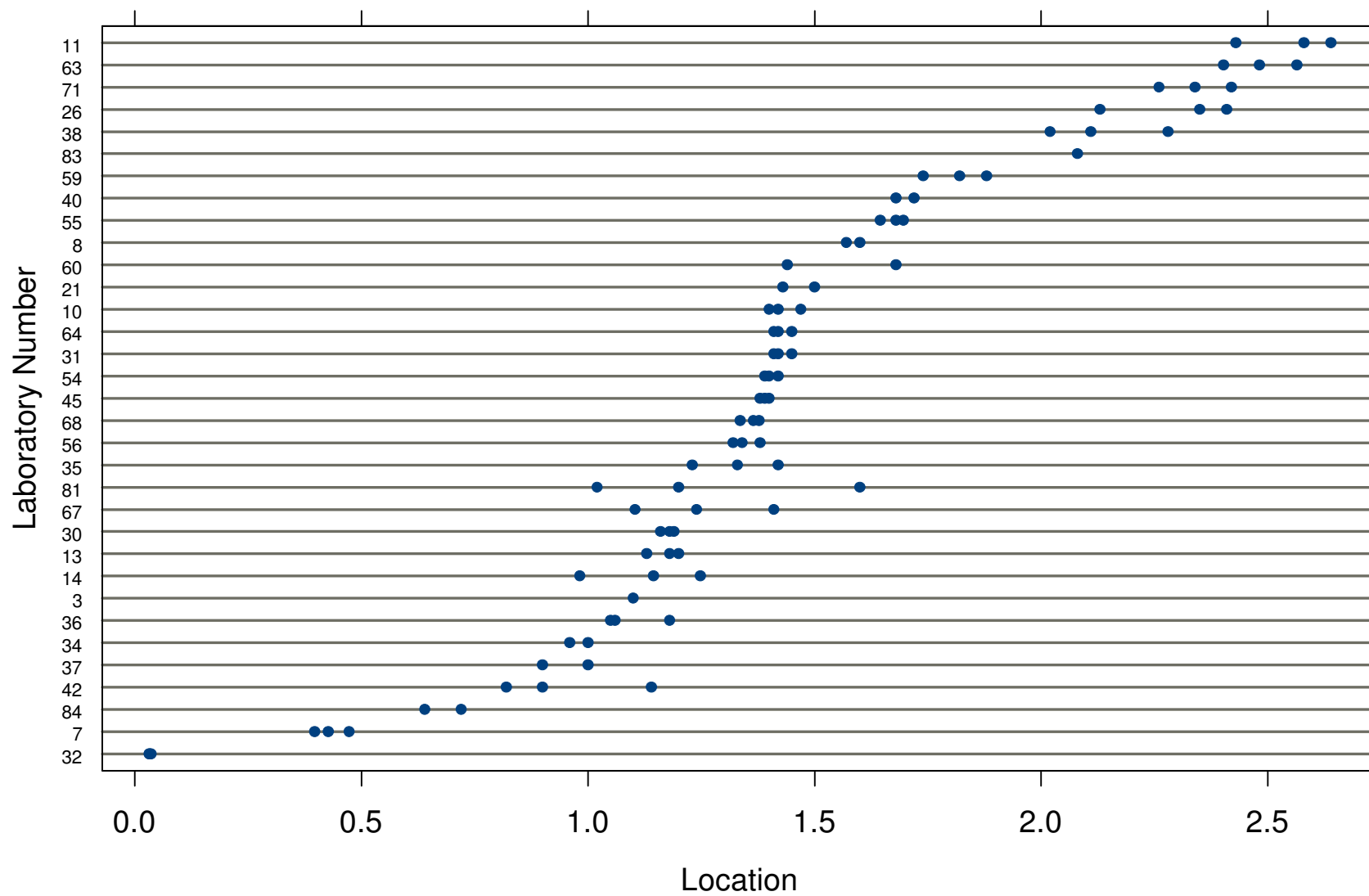
Exchangeable cations (SA10)

*Acid cations, exchangeable acidity
and Free H⁺*

Exchangeable acidity

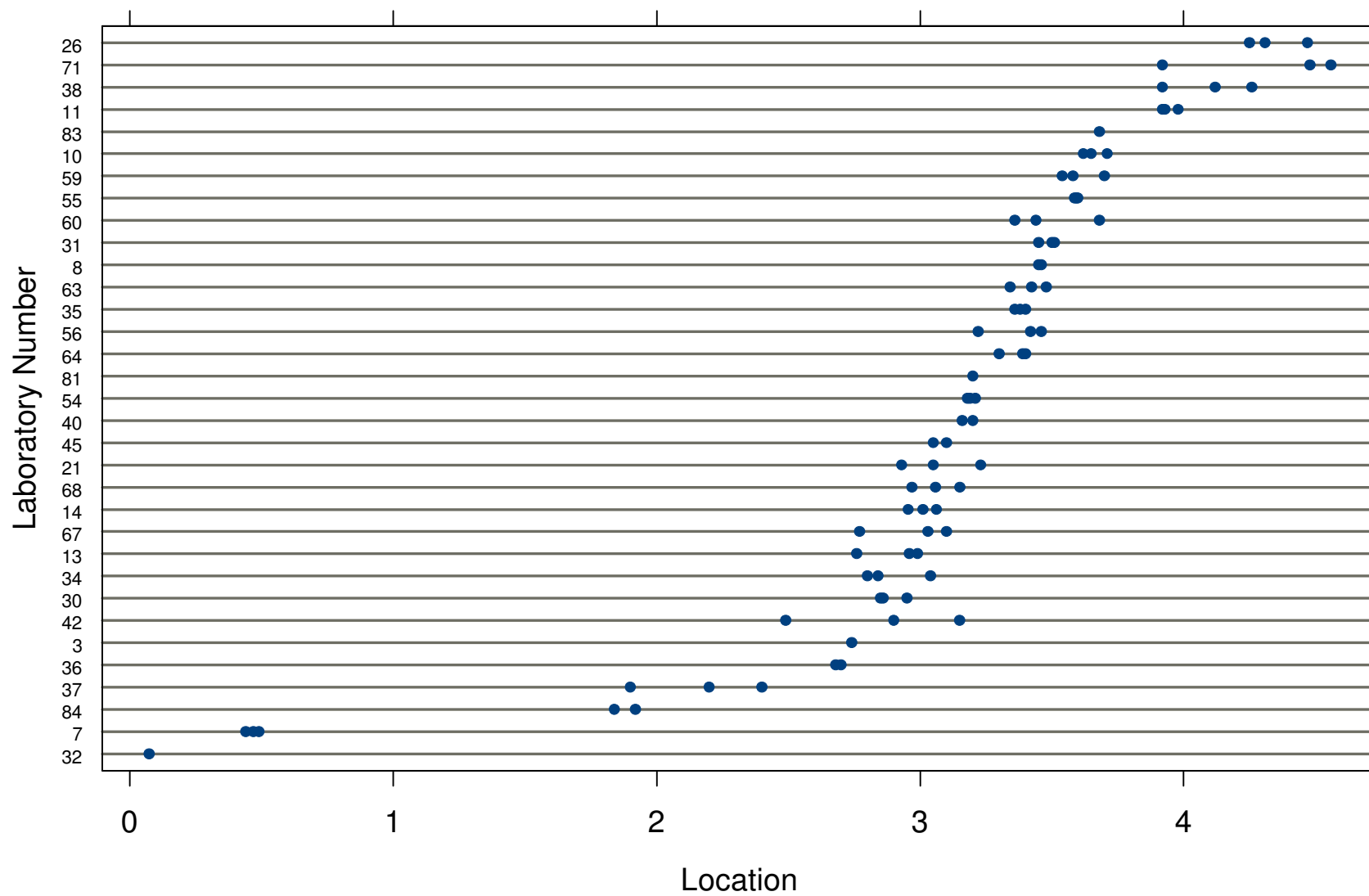
Dot plot sample A

6 - Exchangeable Acidity - Sample A



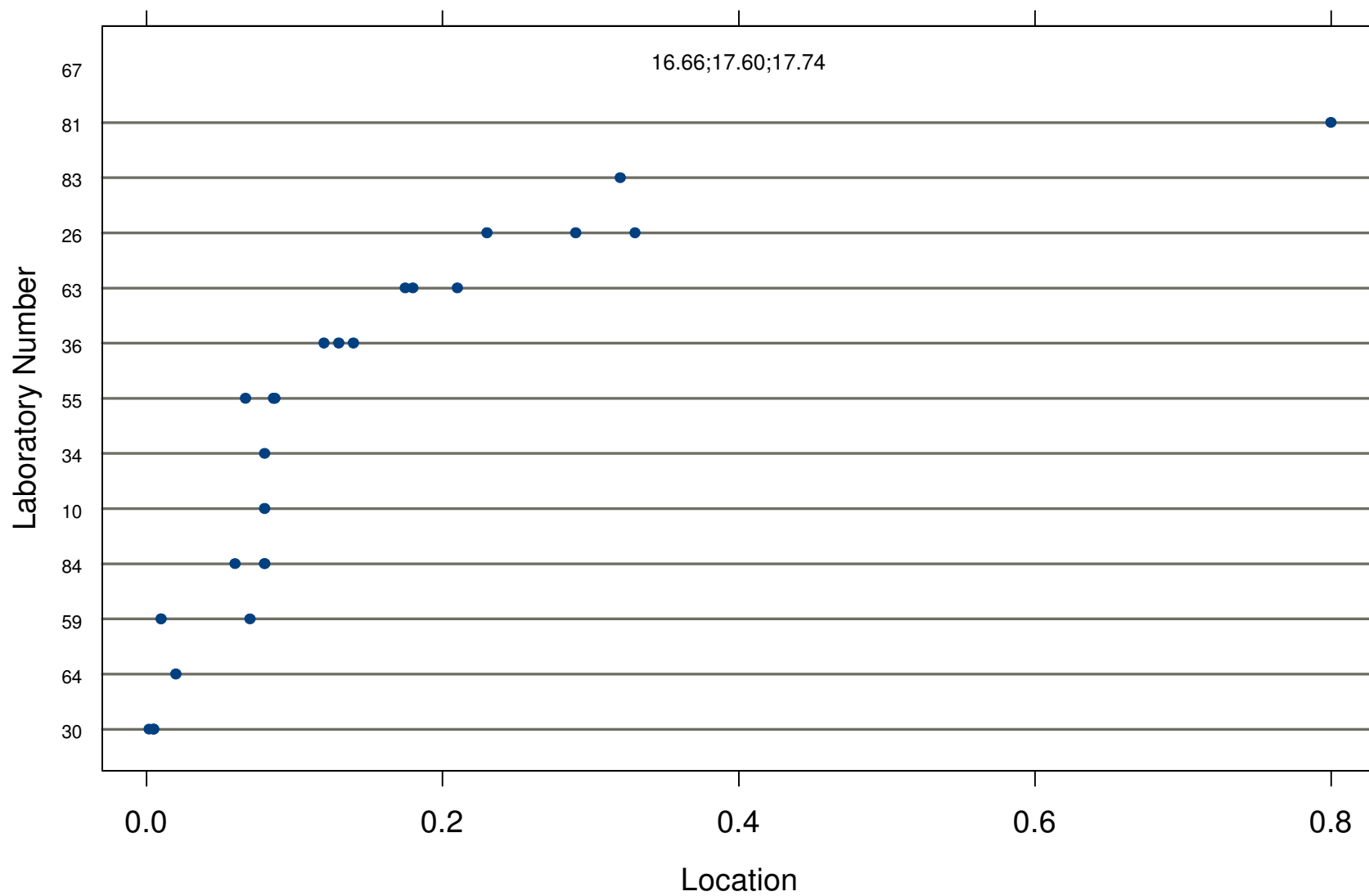
Dot plot sample B

6 - Exchangeable Acidity - Sample B



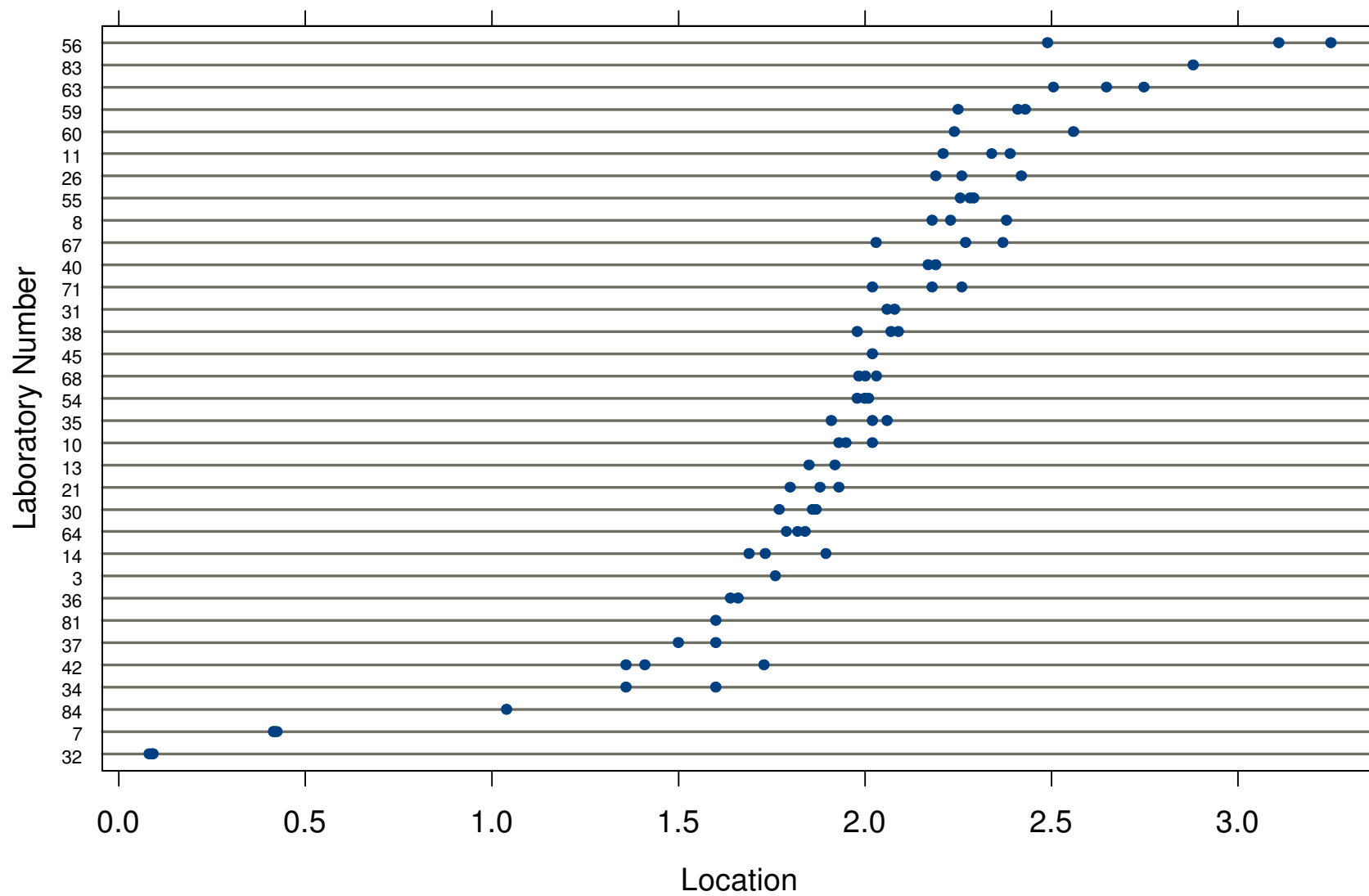
Dot plot sample C

6 - Exchangeable Acidity - Sample C



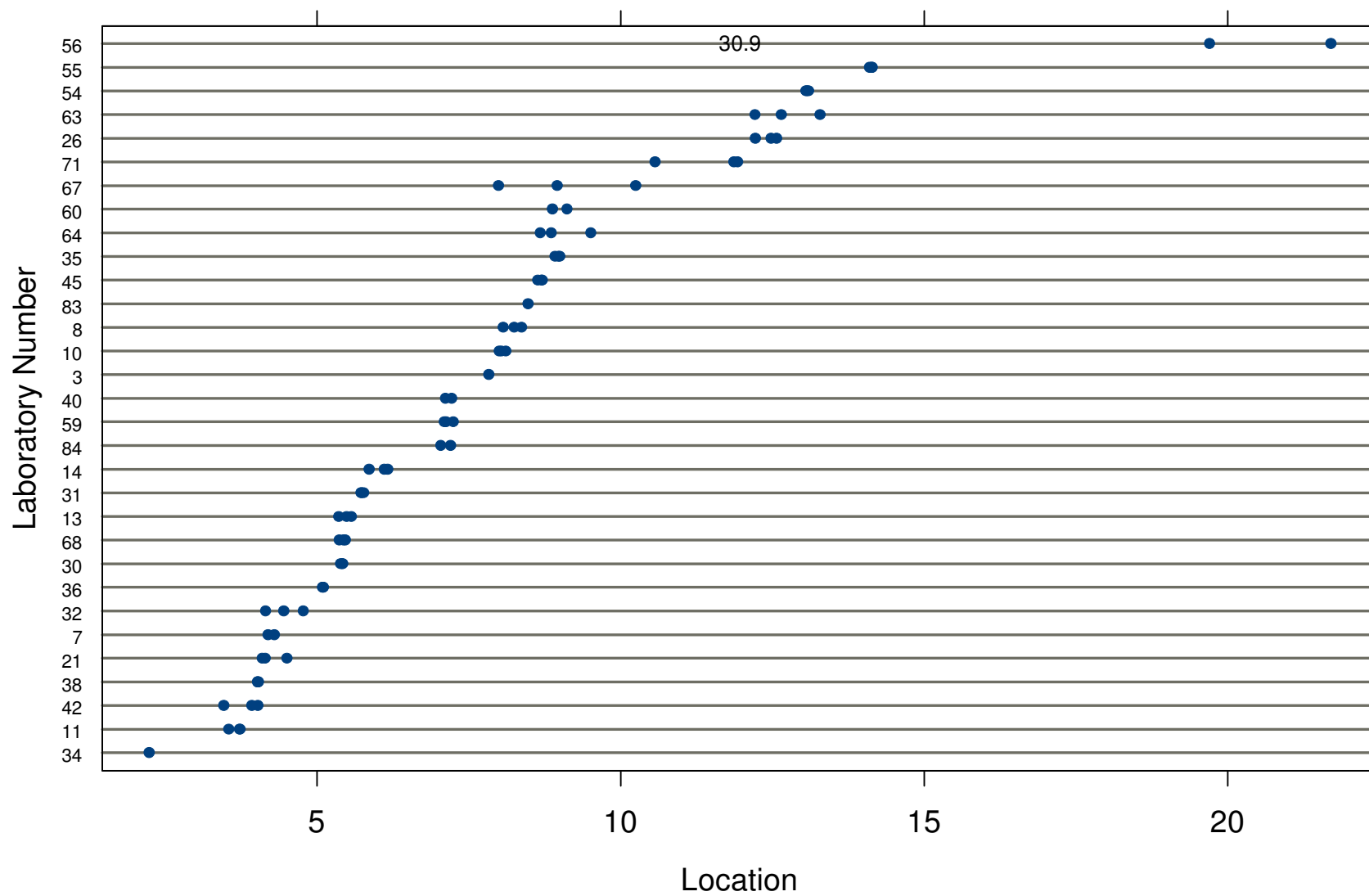
Dot plot sample D

6 - Exchangeable Acidity - Sample D

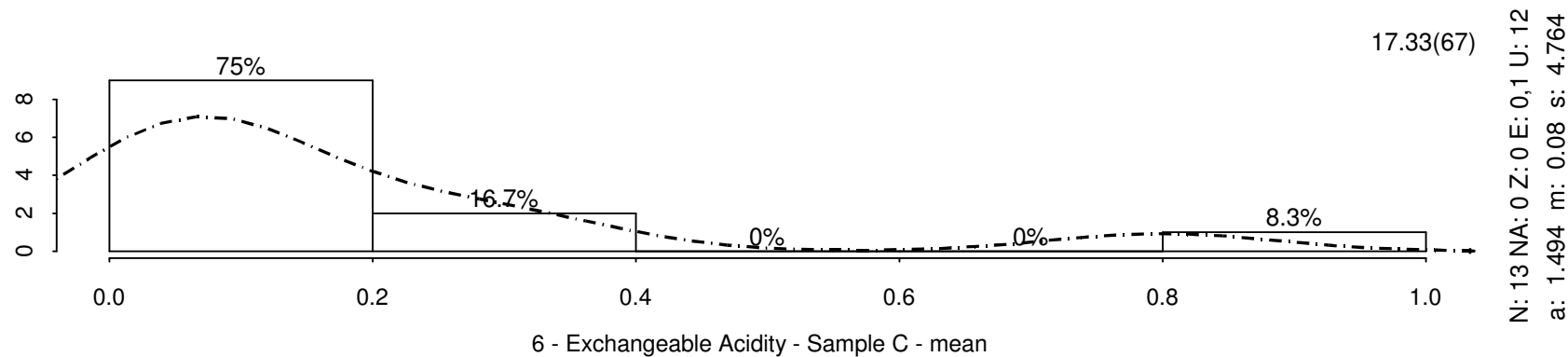
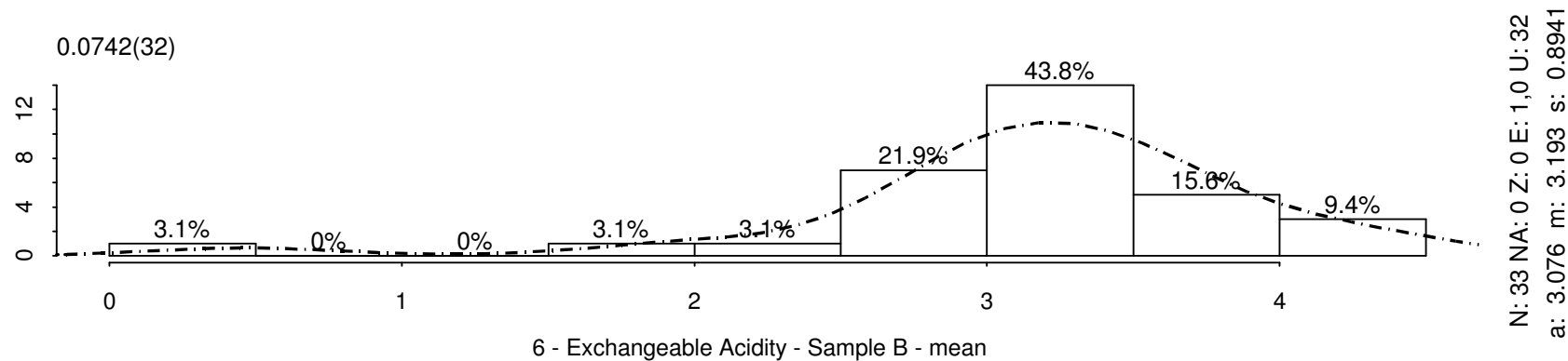
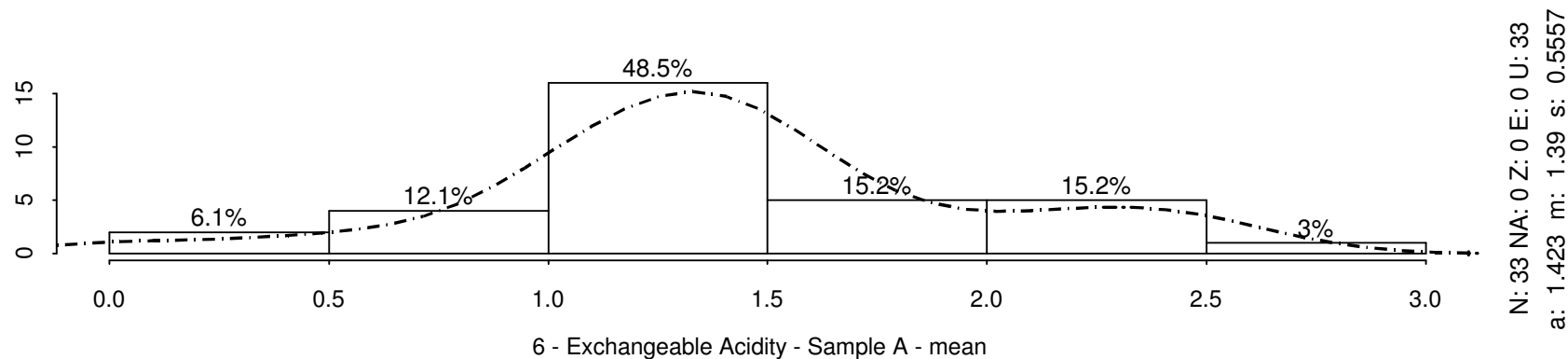


Dot plot sample E

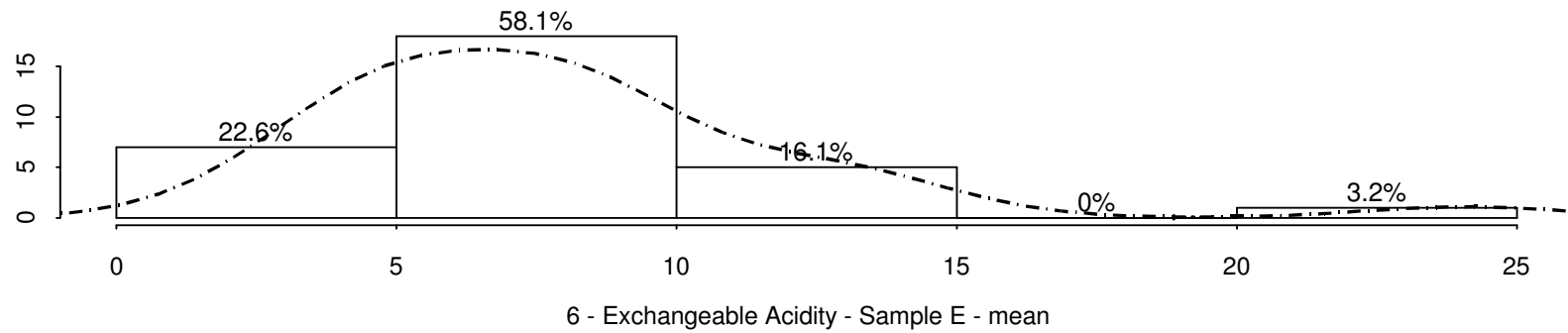
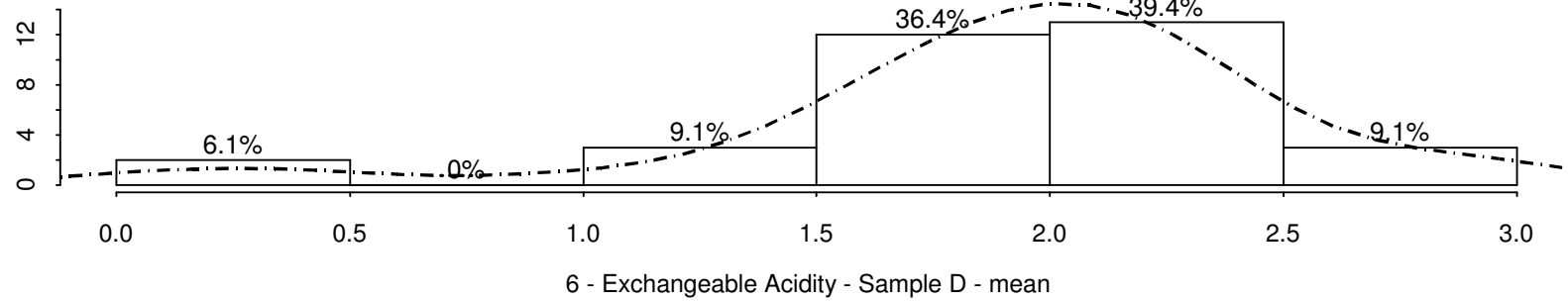
6 - Exchangeable Acidity - Sample E



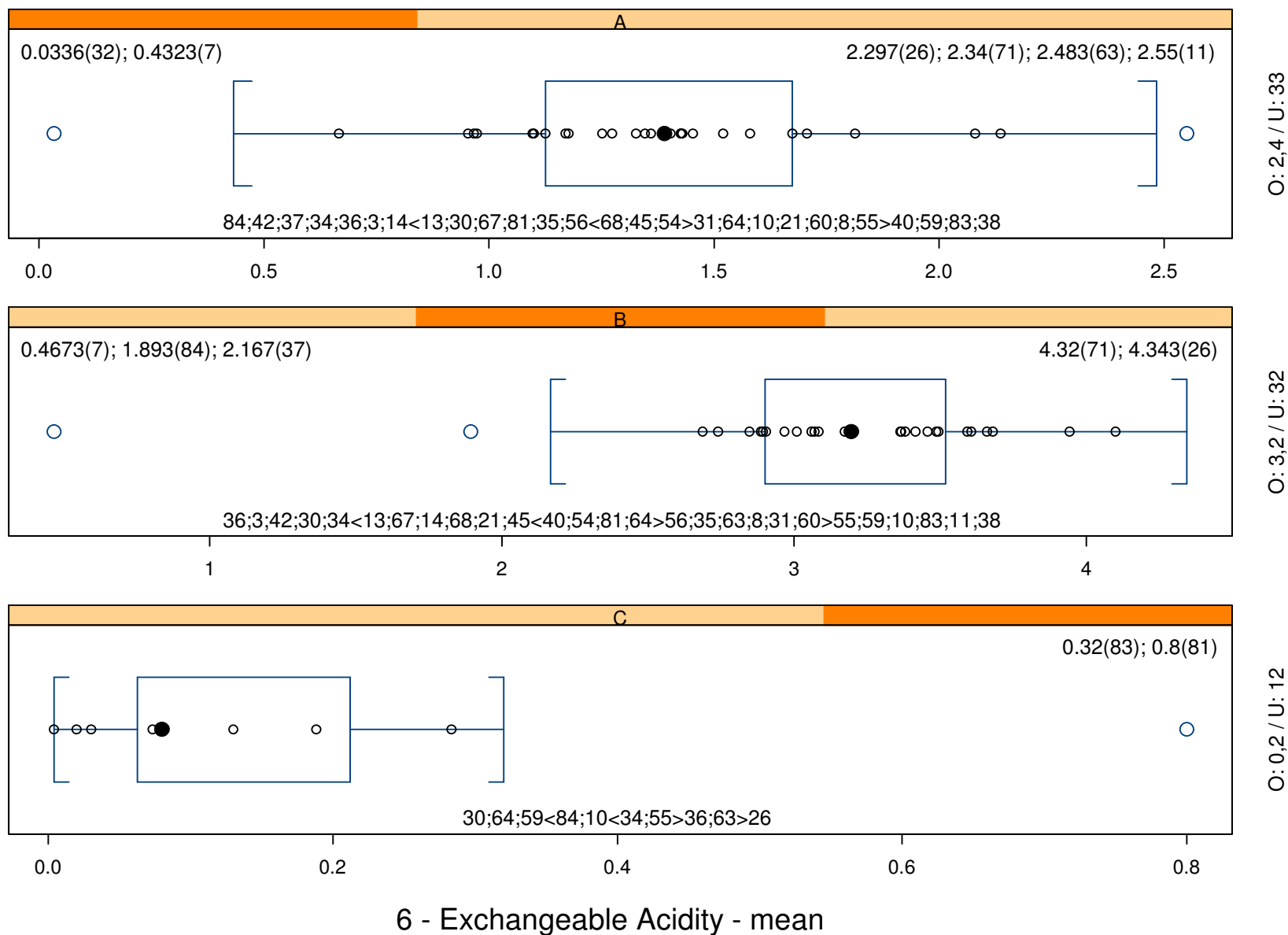
Histogram of the means of samples A, B and C



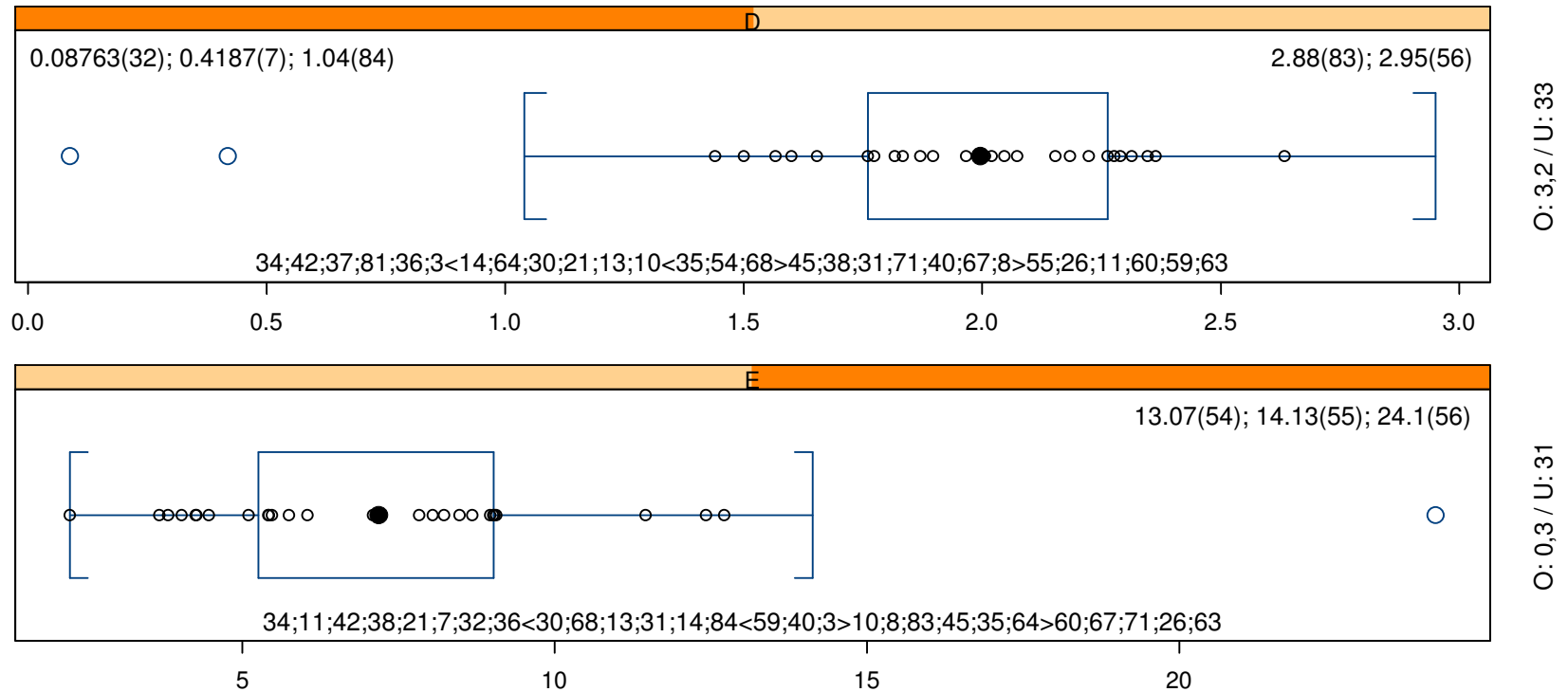
Histogram of the means of samples D and E



Box plot of the means of samples A, B and C

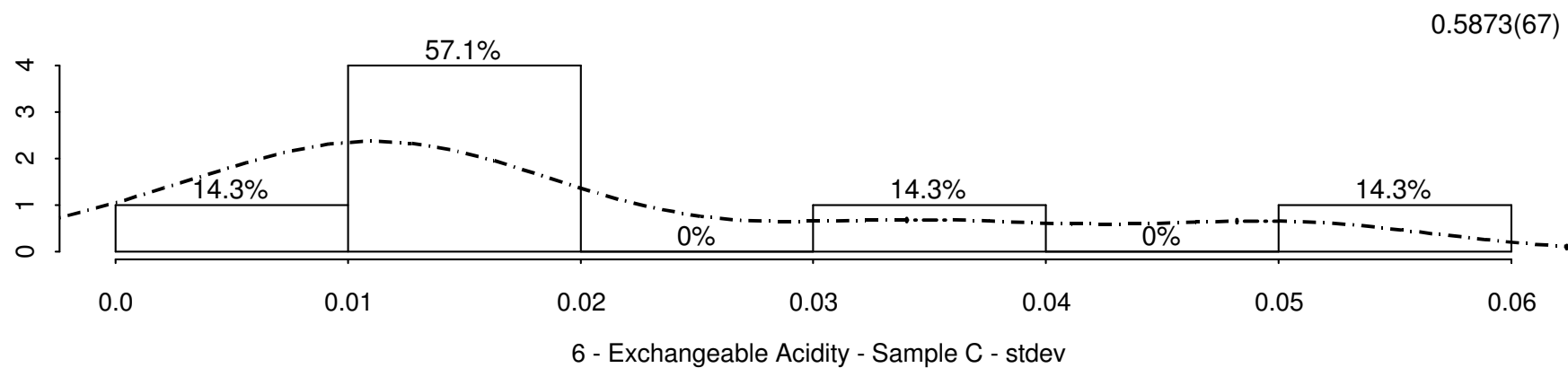
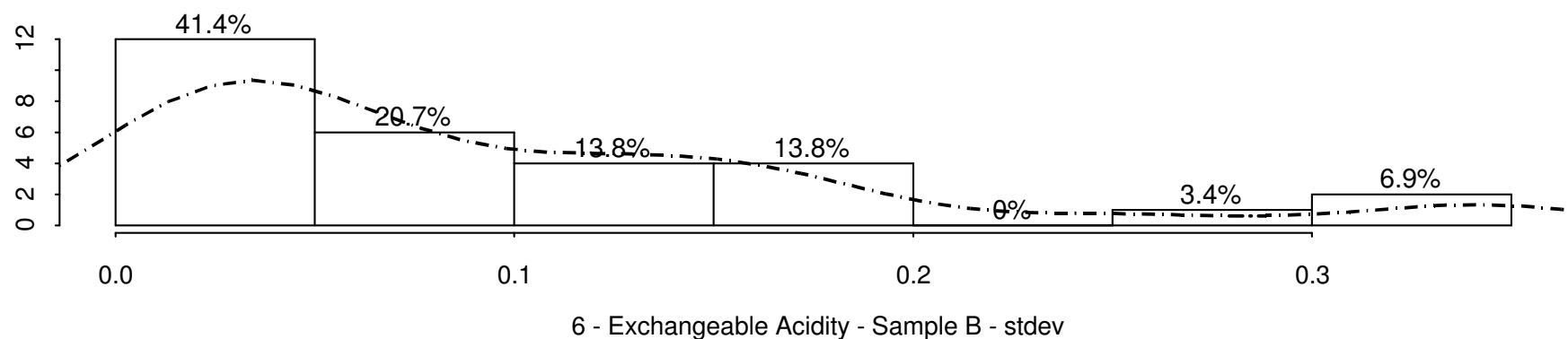
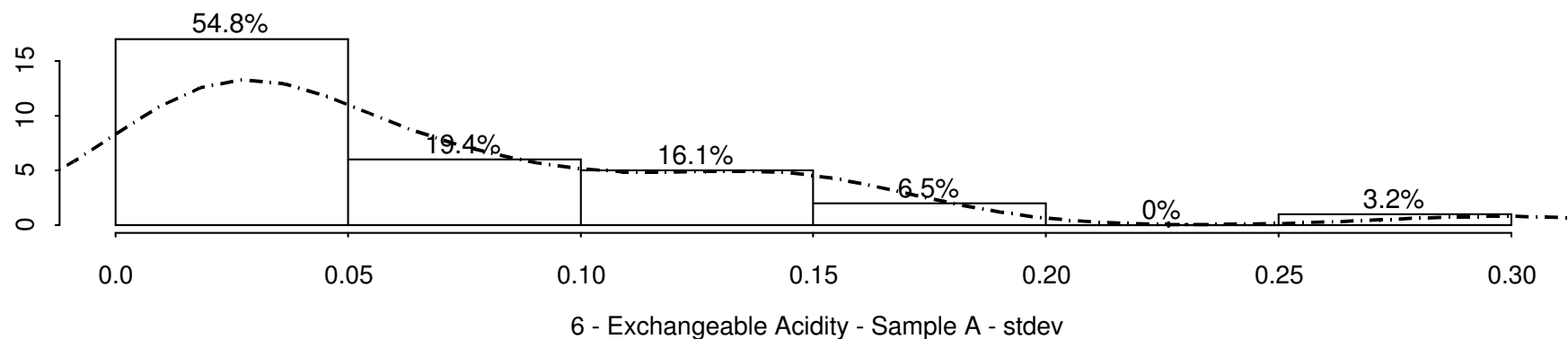


Box plot of the means of samples D and E



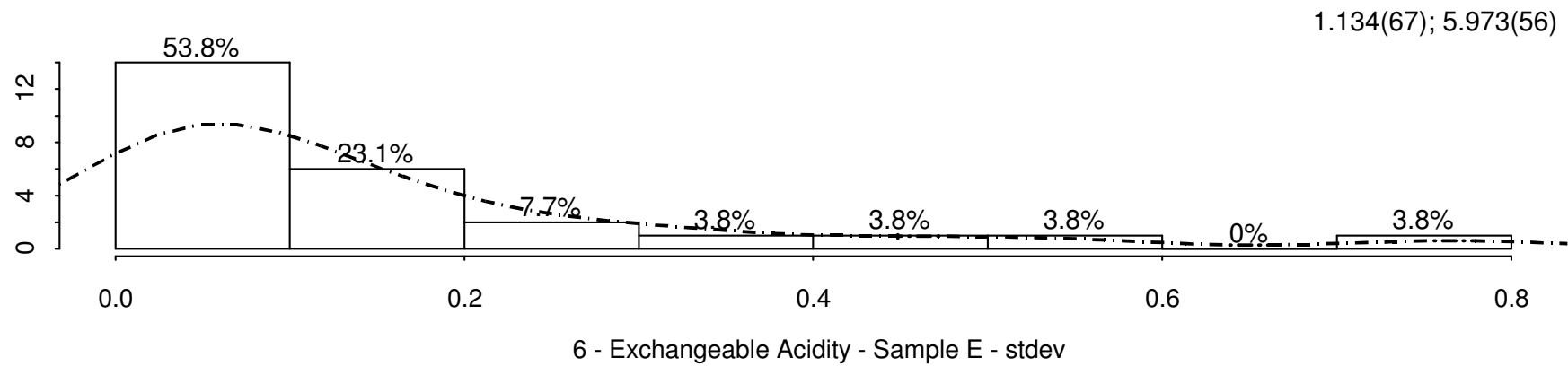
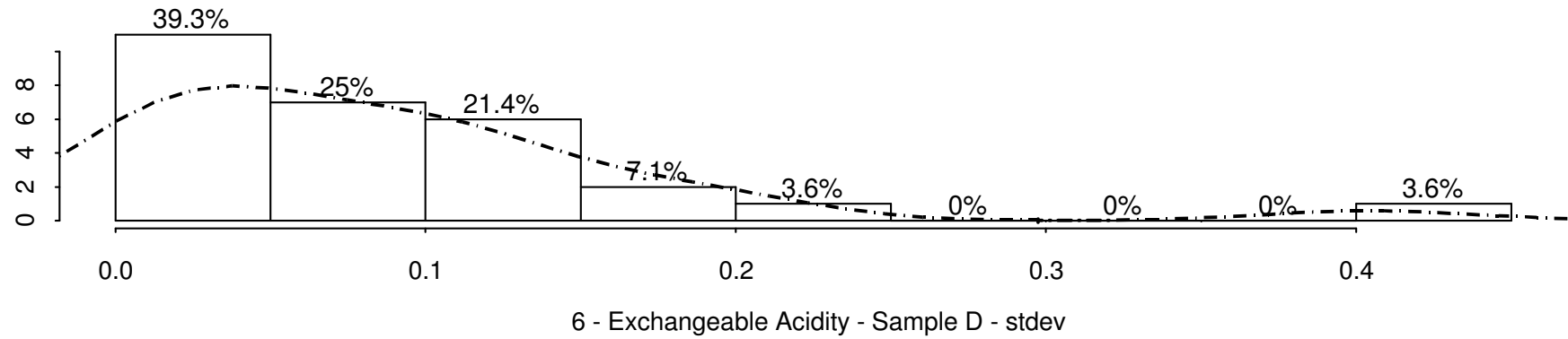
6 - Exchangeable Acidity - mean

Histogram of the standard deviations of samples A, B and C



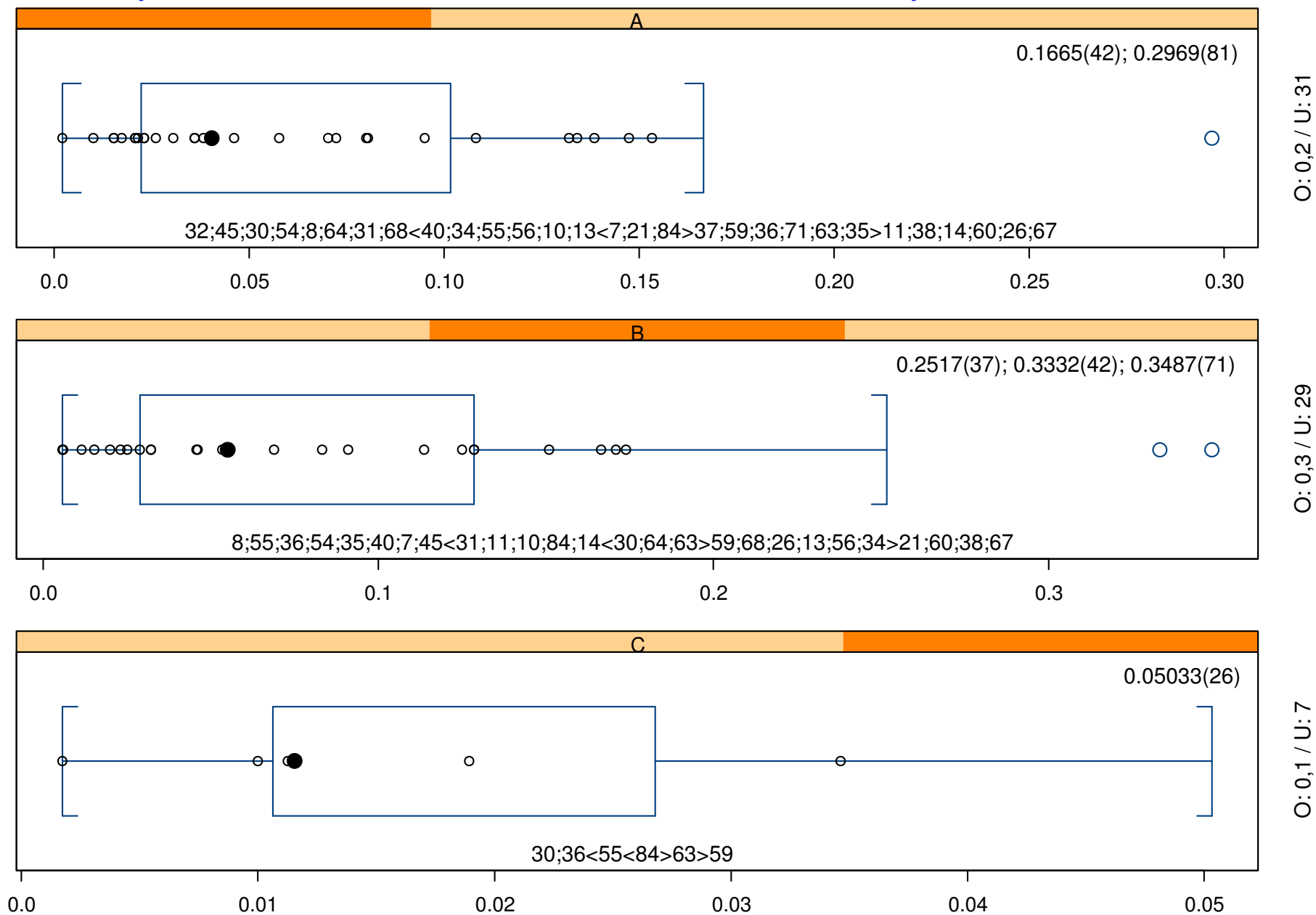
N: 31 NA: 0 Z: 0 E: 0 U: 31
 N: 29 NA: 0 Z: 0 E: 0 U: 29
 N: 8 NA: 0 Z: 0 E: 0,1 U: 7
 a: 0.09072 m: 0.01524 s: 0.2013a: 0.09623 m: 0.05508 s: 0.09201a: 0.06954 m: 0.04041 s: 0.06471

Histogram of the standard deviations of samples D and E



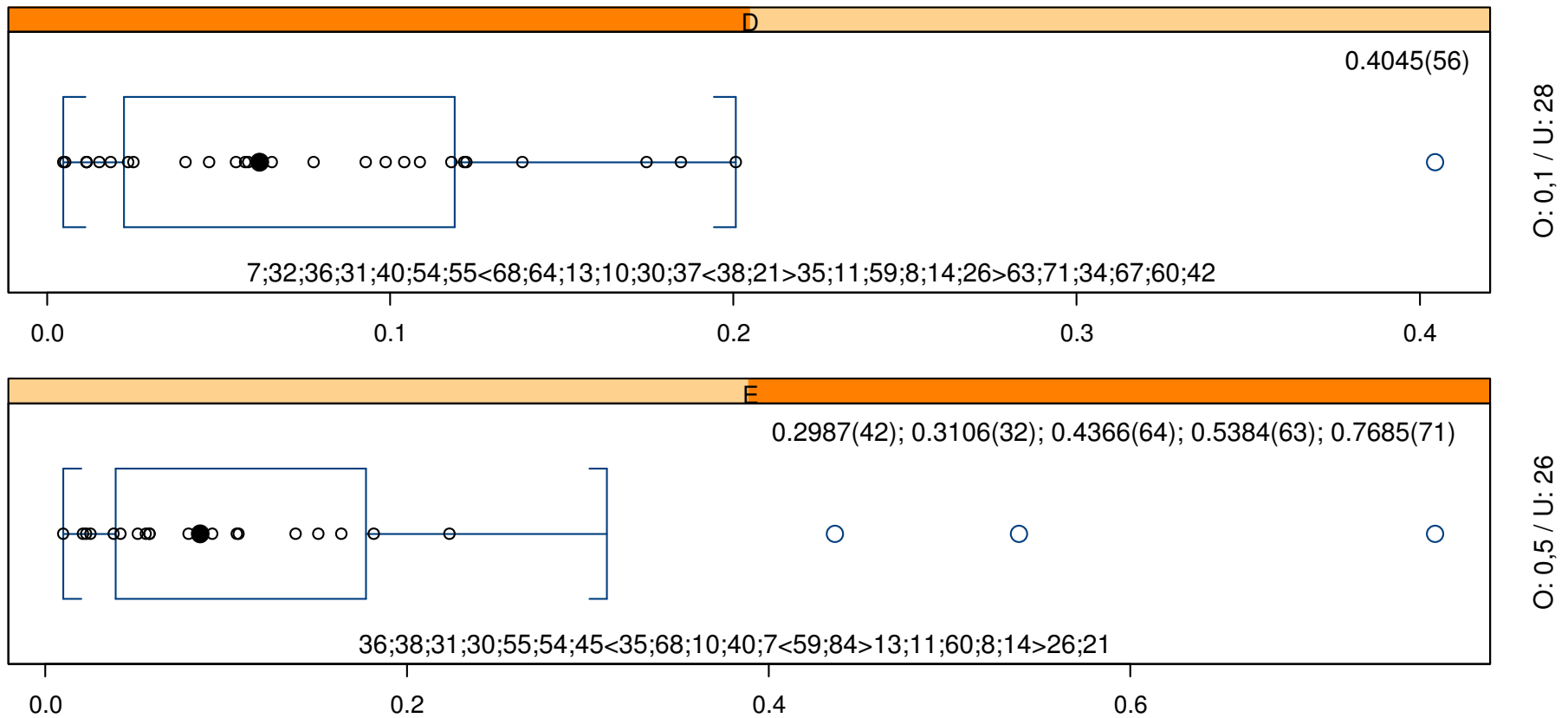
N: 28 NA: 0 Z: 0 E: 0 U: 28
a: 0.397 m: 0.09918 s: 1.122 a: 0.08568 m: 0.06208 s: 0.08456

Box plot of the standard deviations of samples A, B and C



6 - Exchangeable Acidity - stdev

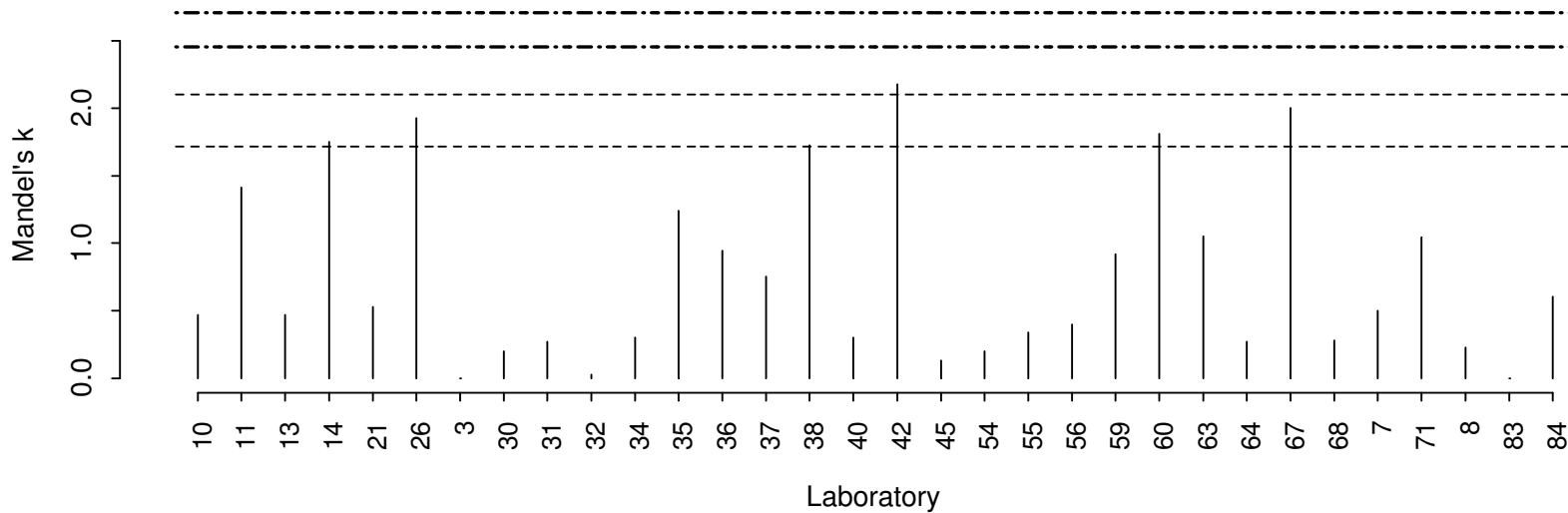
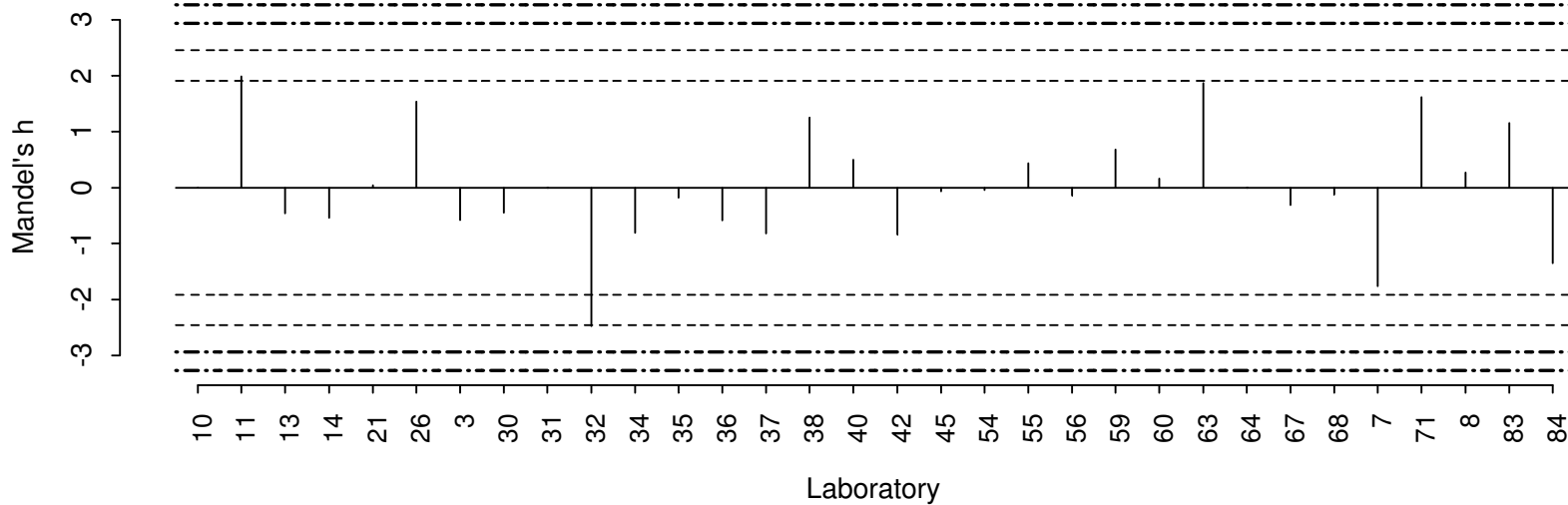
Box plot of the standard deviations of samples D and E



Mandel's h and k plots of sample A

6 - Exchangeable Acidity - Sample A

Step:2; Nlab:32; Mgen:1.428; Fval:162.9; Pval:0; sRep:0.07653; sLab:0.5622; sRpr:0.5674; CV:39.74

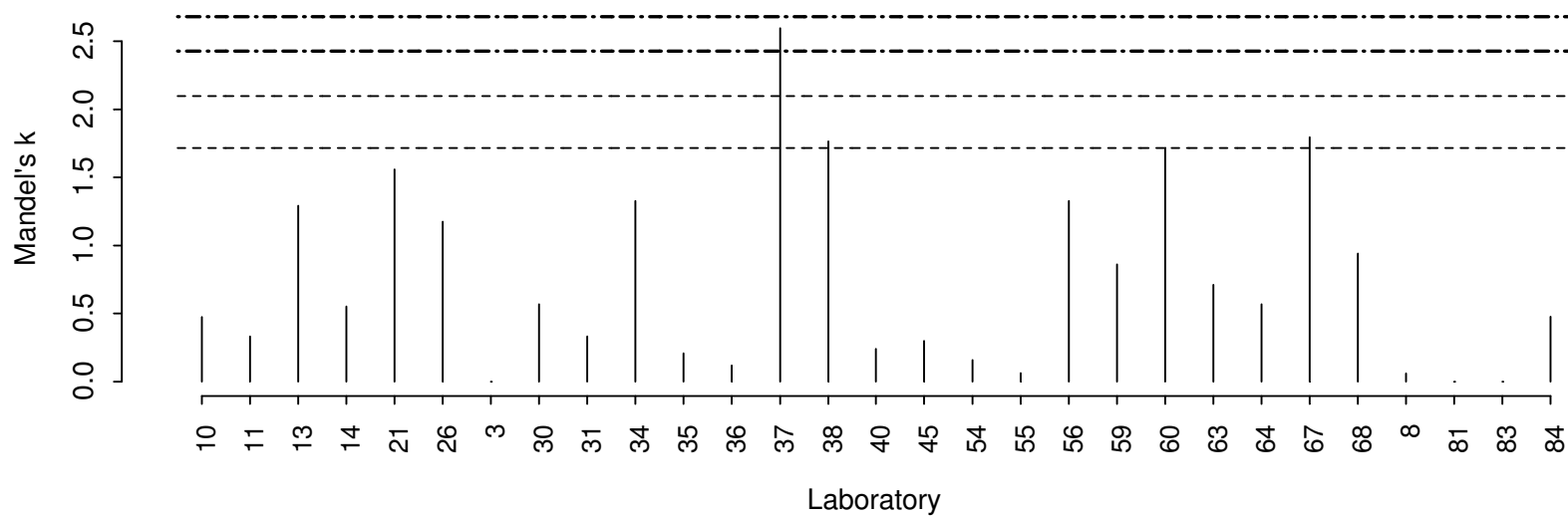
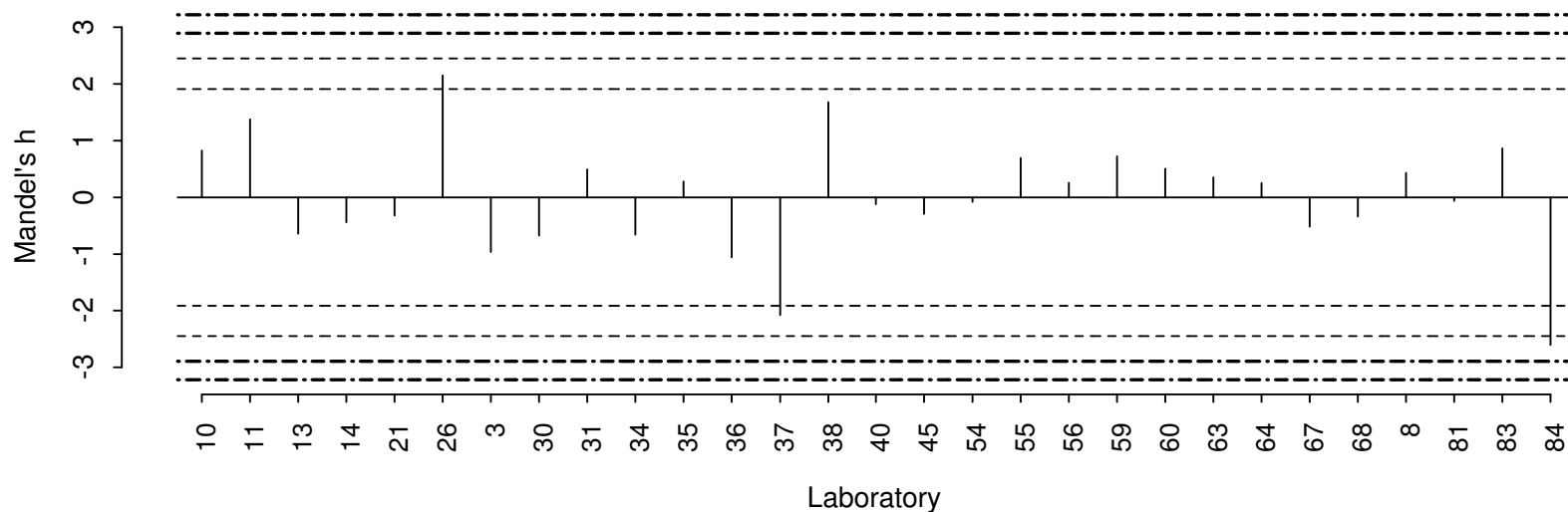


E: k81

Mandel's h and k plots of sample B

6 - Exchangeable Acidity - Sample B

Step:3; Nlab:29; Mgen:3.235; Fval:84.83; Pval:0; sRep:0.09691; sLab:0.5123; sRpr:0.5213; CV:16.12



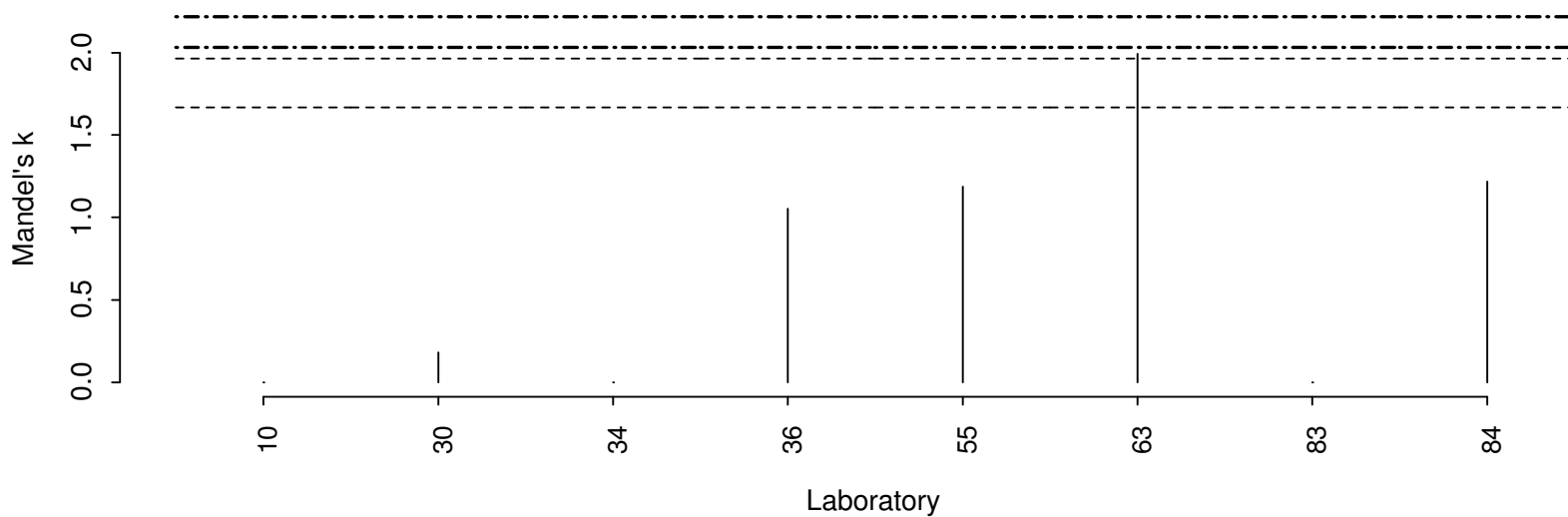
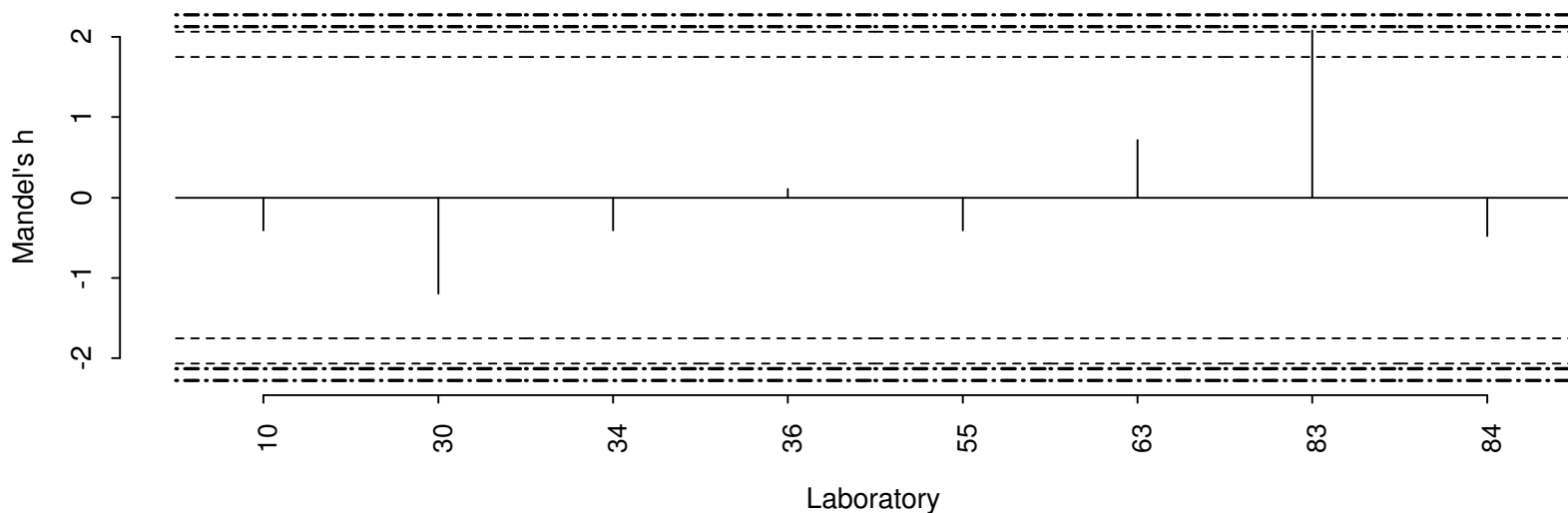
S: 37

E: h32;k71;k42;h7

Mandel's h and k plots of sample C

6 - Exchangeable Acidity - Sample C

Step:4; Nlab:8; Mgen:0.1195; Fval:309.8; Pval:7.772e-014; sRep:0.009498; sLab:0.09636; sRpr:0.09682; CV:81.05

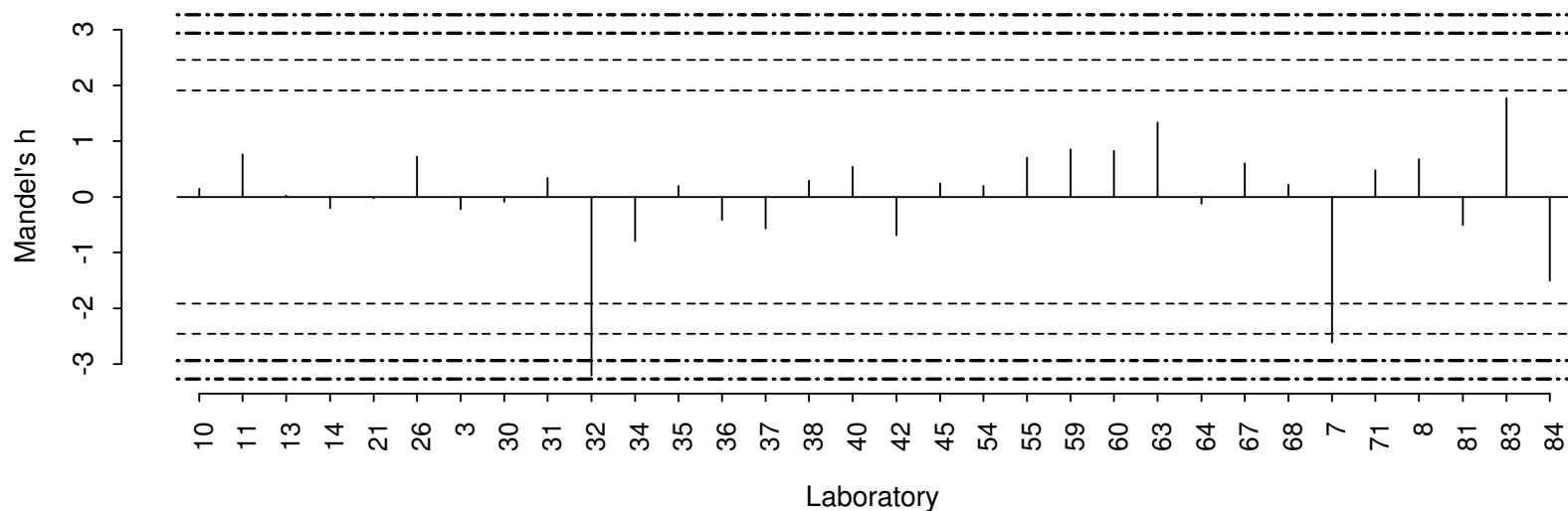


E: hk67;k26;h81;k59

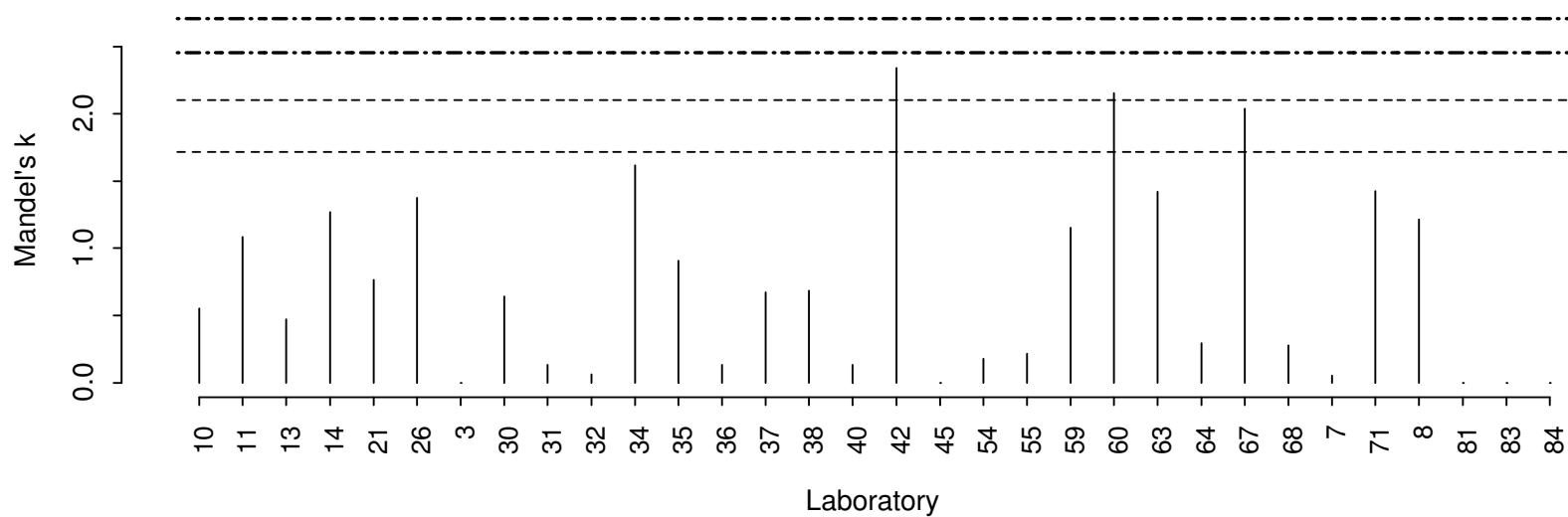
Mandel's h and k plots of sample D

6 - Exchangeable Acidity - Sample D

Step:2; Nlab:32; Mgen:1.884; Fval:128.5; Pval:0; sRep:0.0857; sLab:0.5587; sRpr:0.5652; CV:30



S: 32

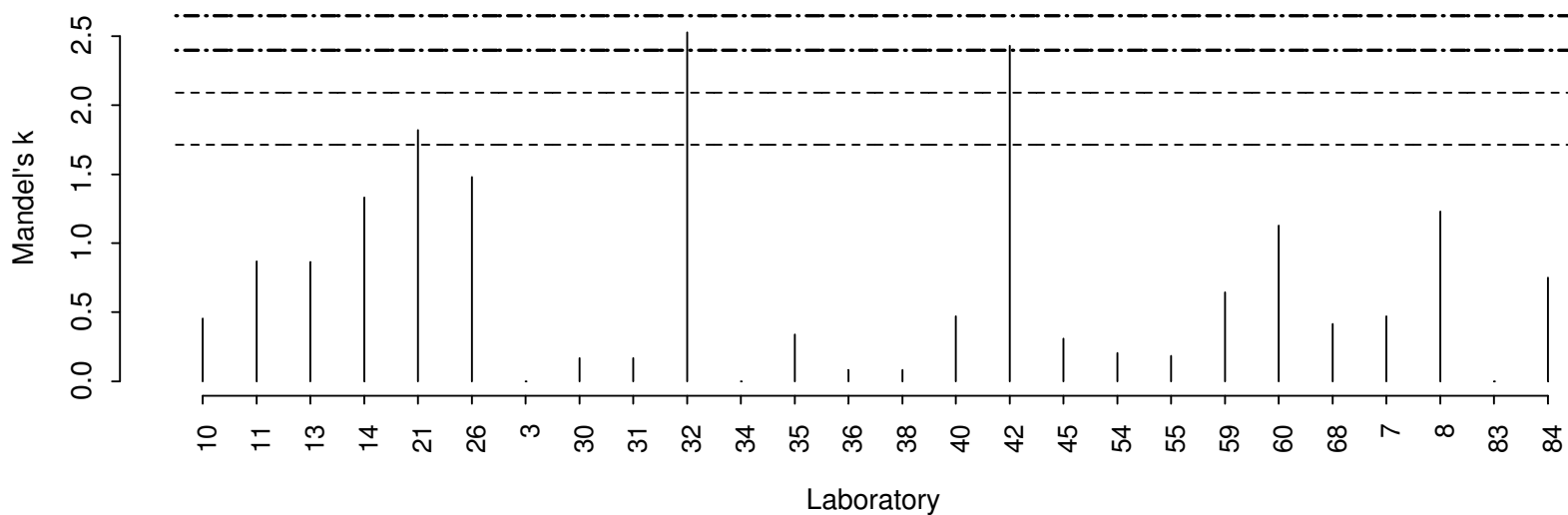
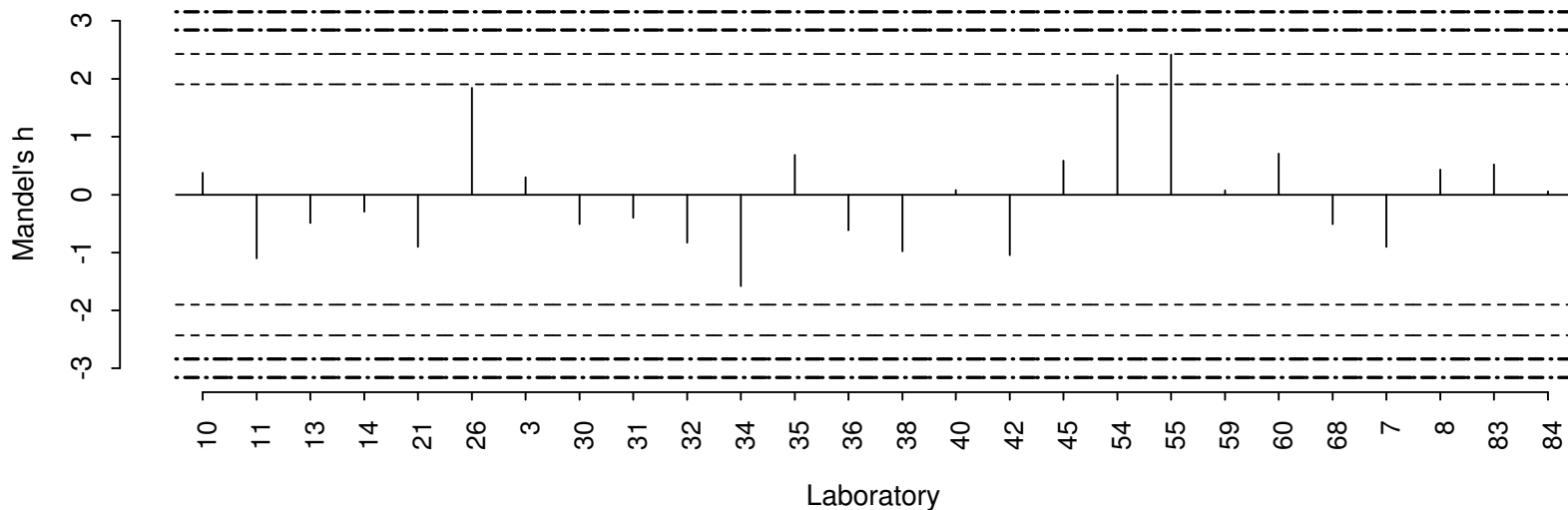


E: k56

Mandel's h and k plots of sample E

6 - Exchangeable Acidity - Sample E

Step:6; Nlab:26; Mgen:6.934; Fval:1755; Pval:0; sRep:0.1229; sLab:2.972; sRpr:2.975; CV:42.9



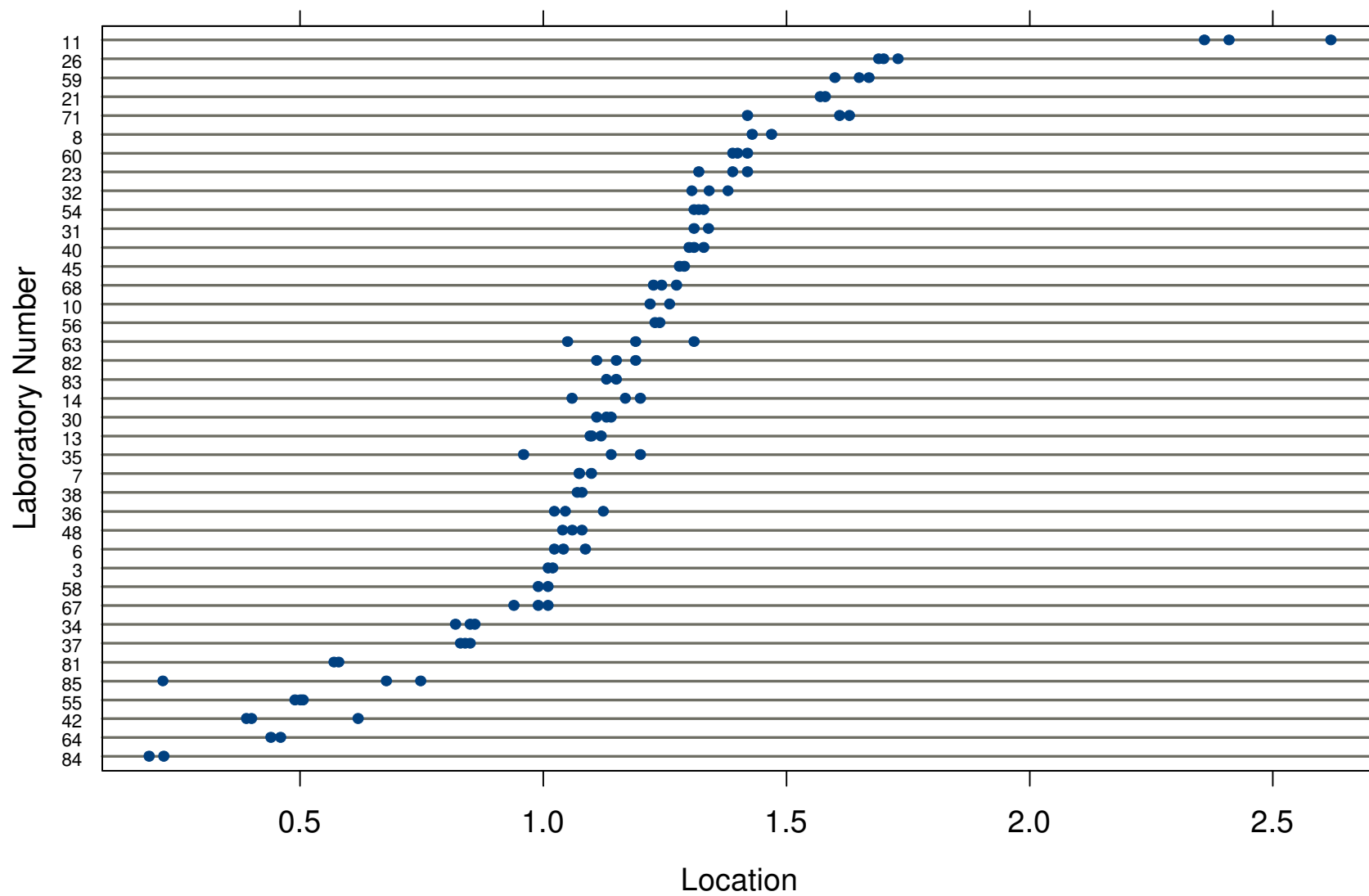
S: 32,42

E: hk56;k67;k71;k63;k64

Exchangeable Aluminium

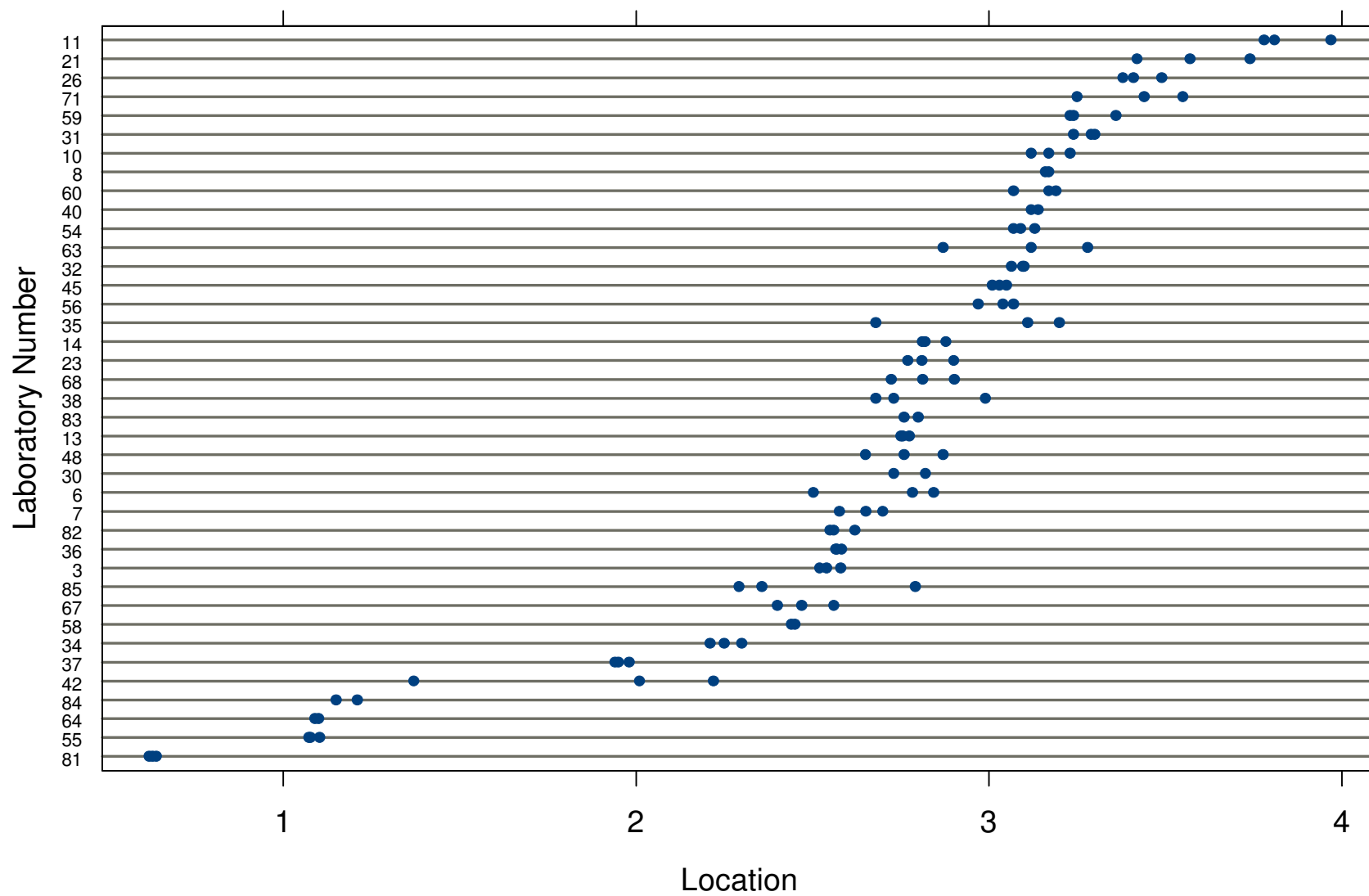
Dot plot sample A

6 - Exchangeable Al - Sample A



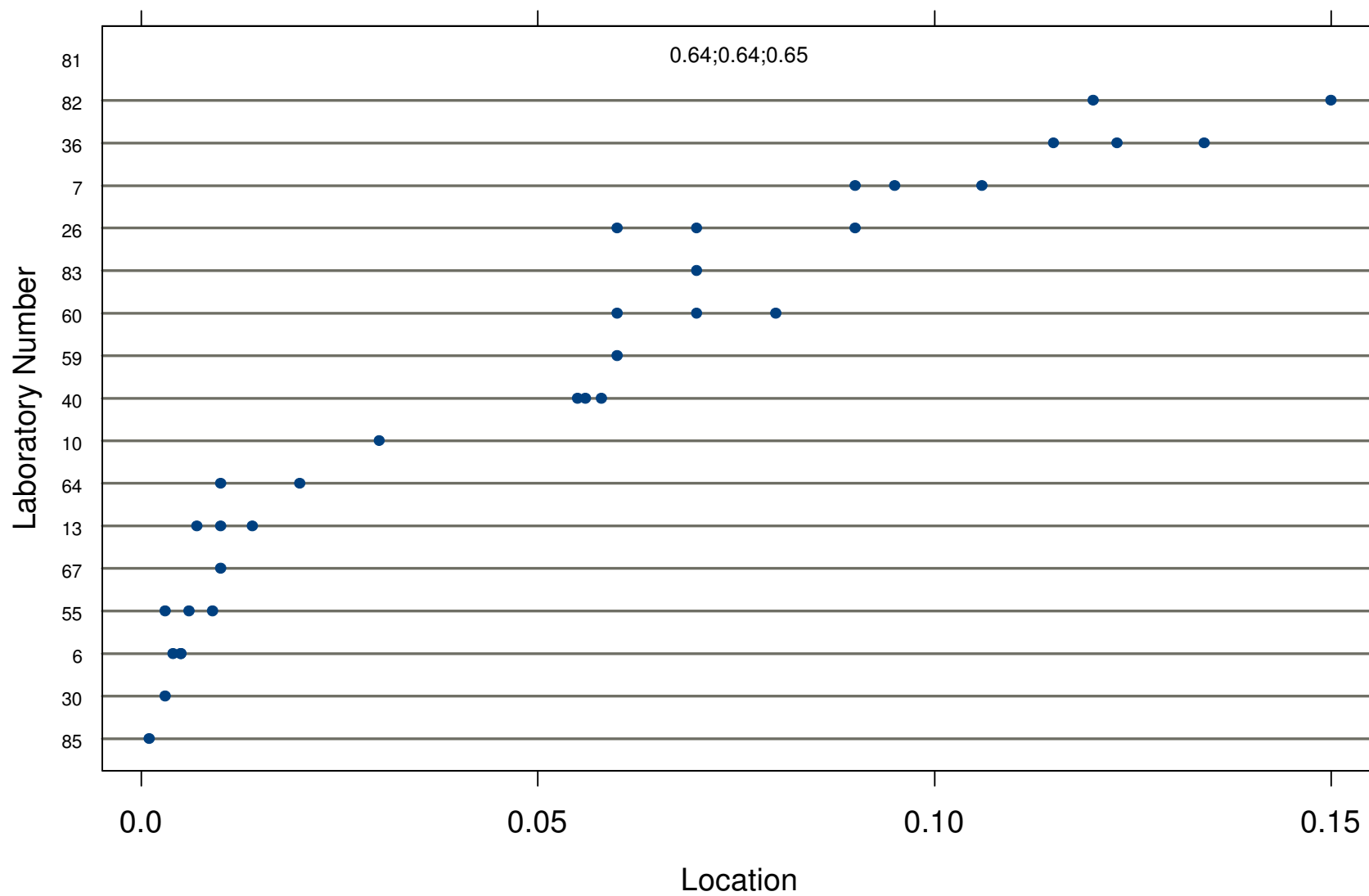
Dot plot sample B

6 - Exchangeable Al - Sample B



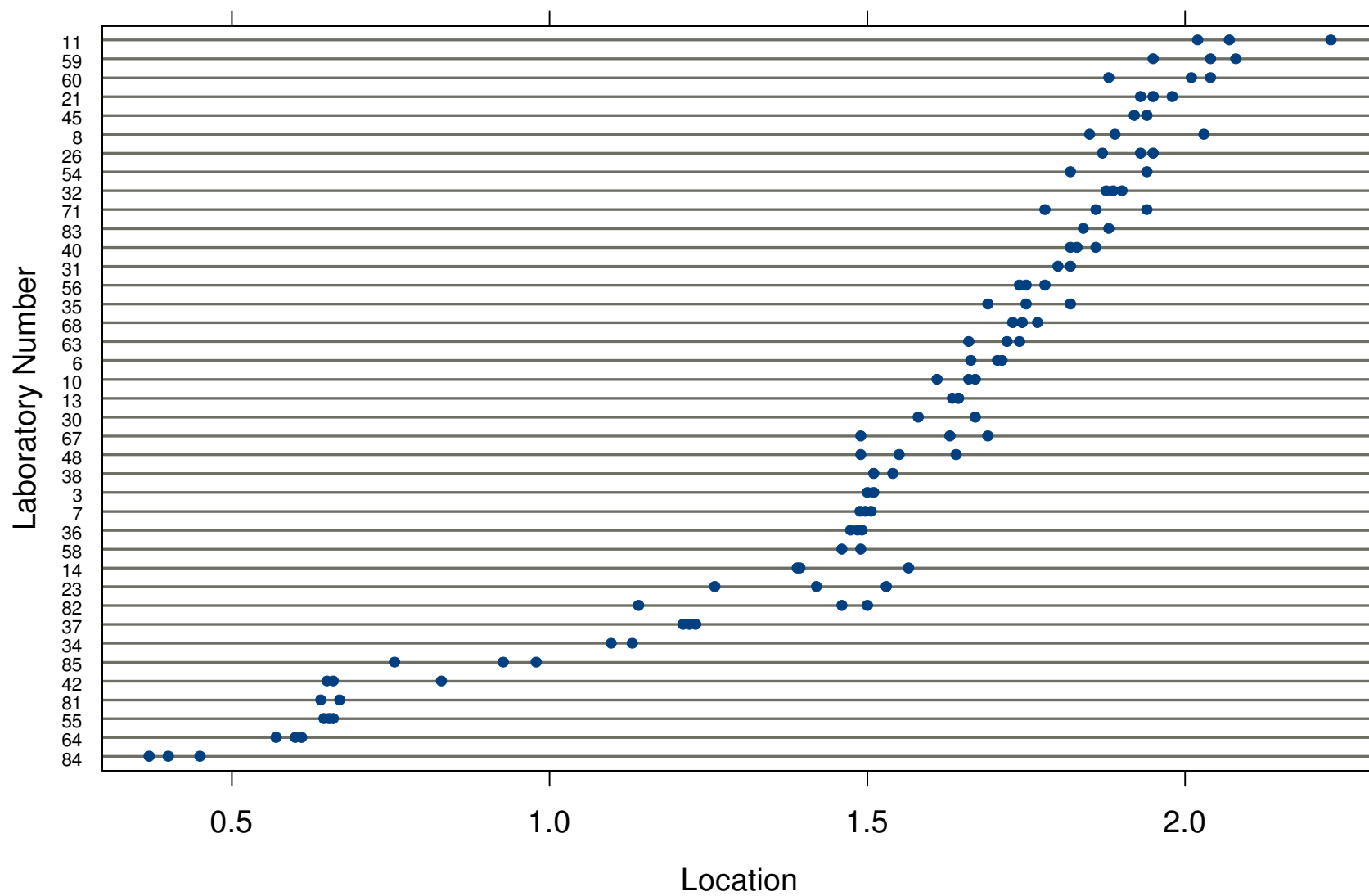
Dot plot sample C

6 - Exchangeable Al - Sample C



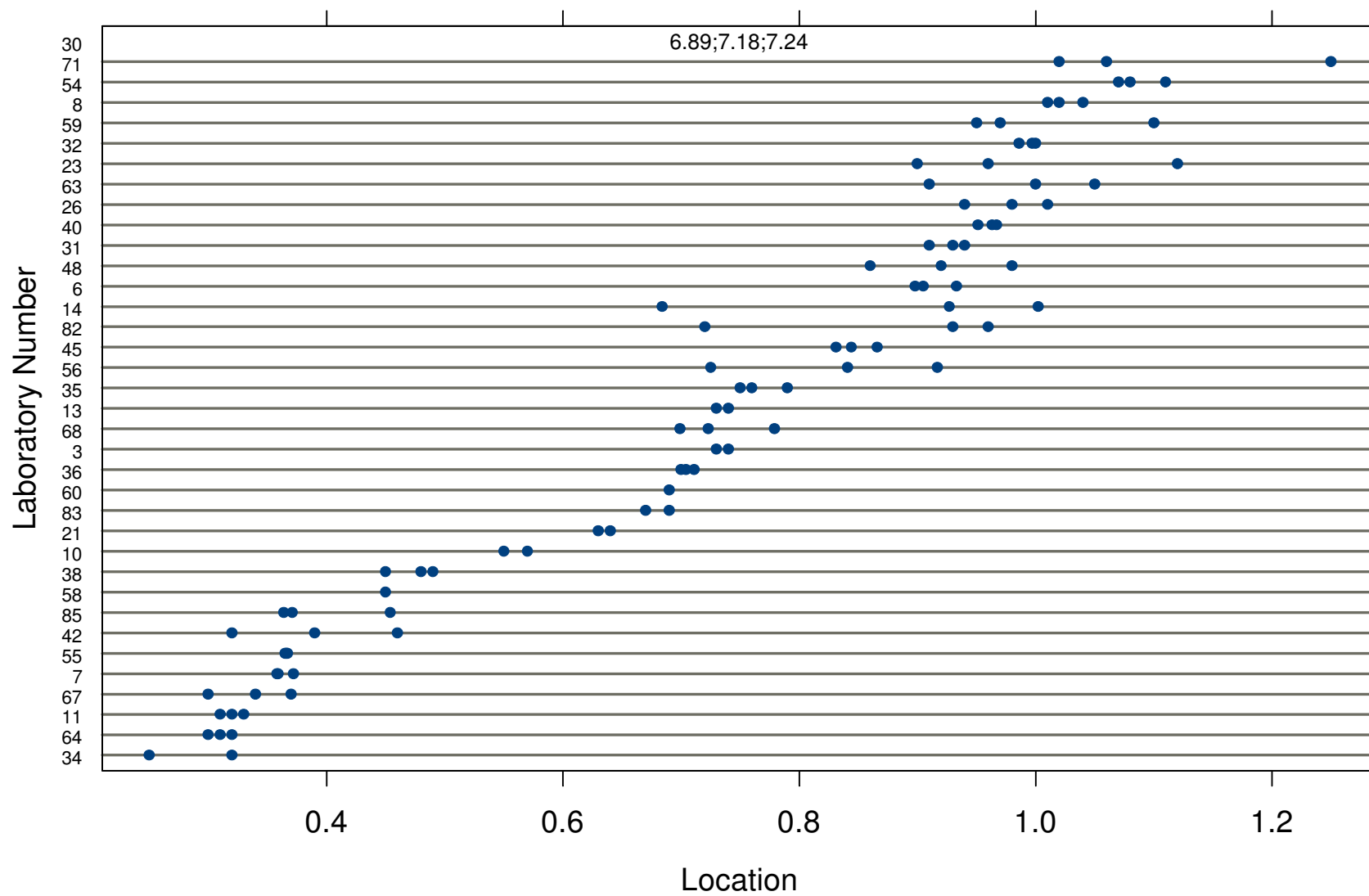
Dot plot sample D

6 - Exchangeable Al - Sample D

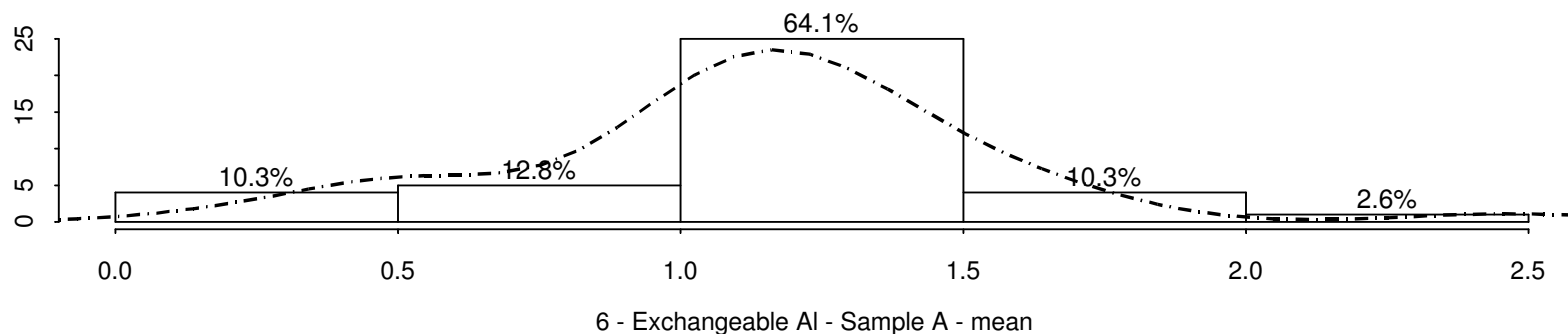


Dot plot sample E

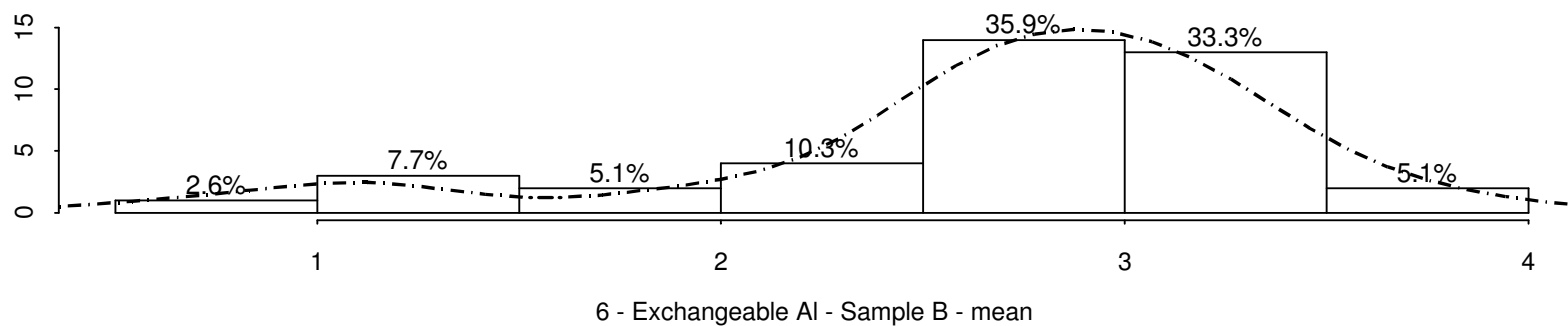
6 - Exchangeable Al - Sample E



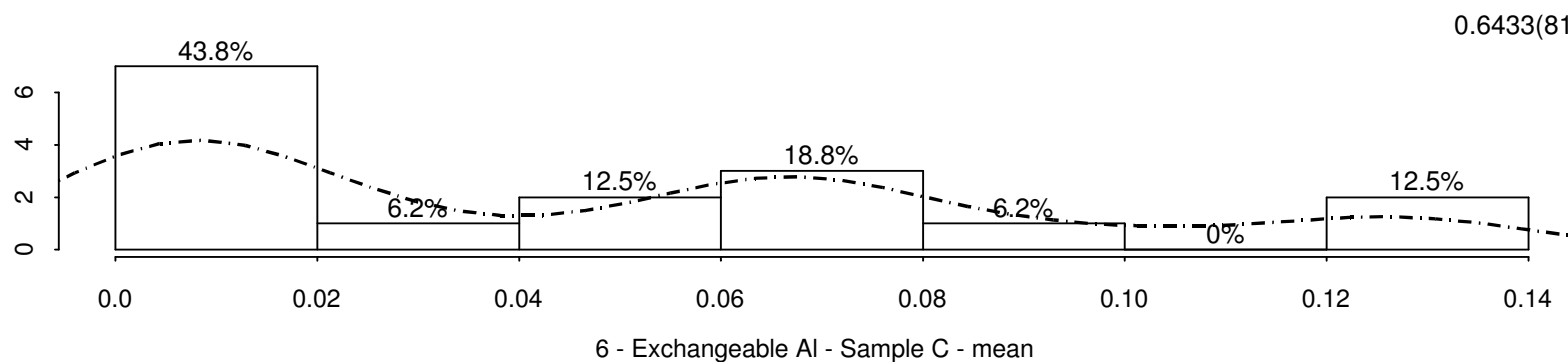
Histogram of the means of samples A, B and C



N: 39 NA: 0 Z: 0 E: 0 U: 39
a: 1.132 m: 1.143 s: 0.4052

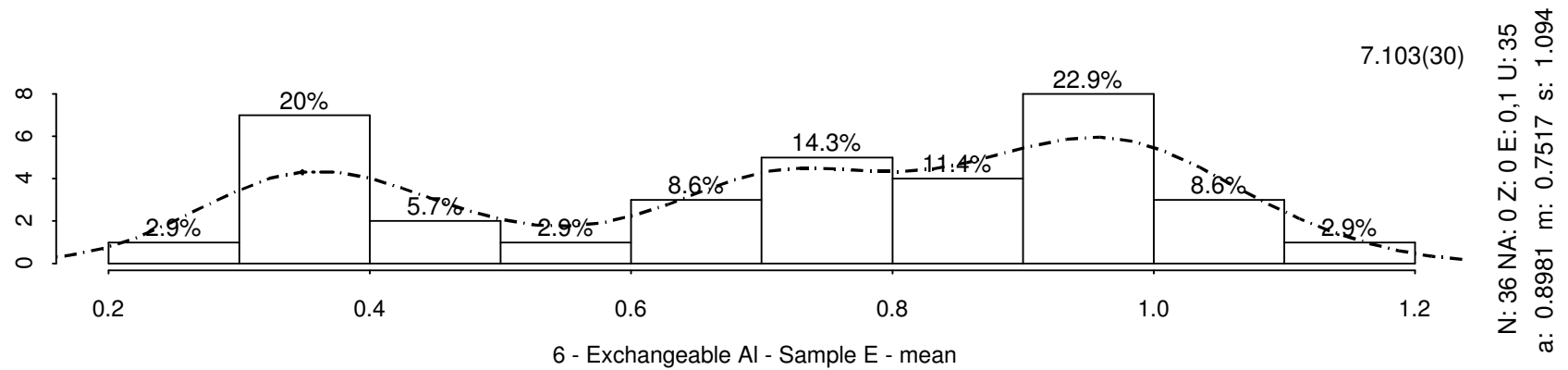
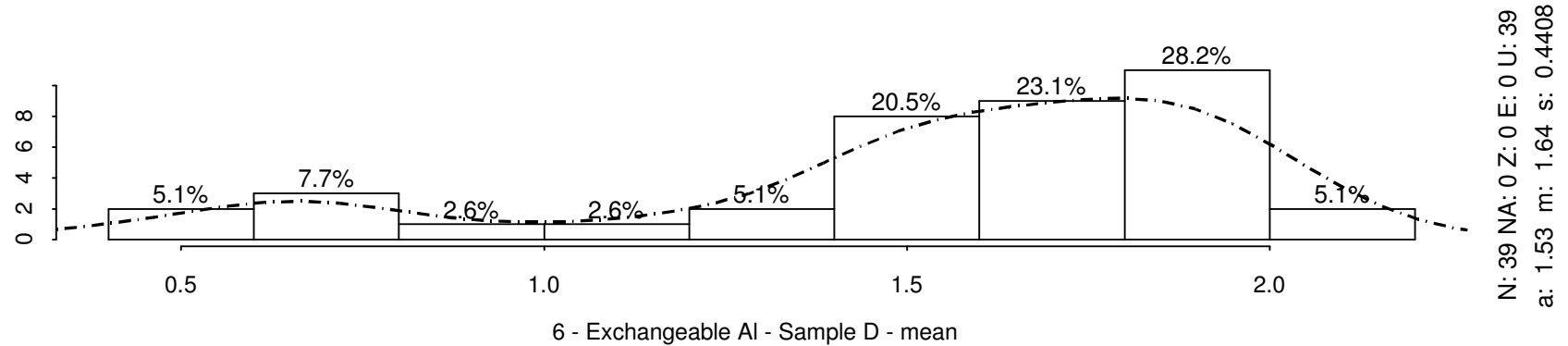


N: 39 NA: 0 Z: 0 E: 0 U: 39
a: 2.683 m: 2.8 s: 0.7046

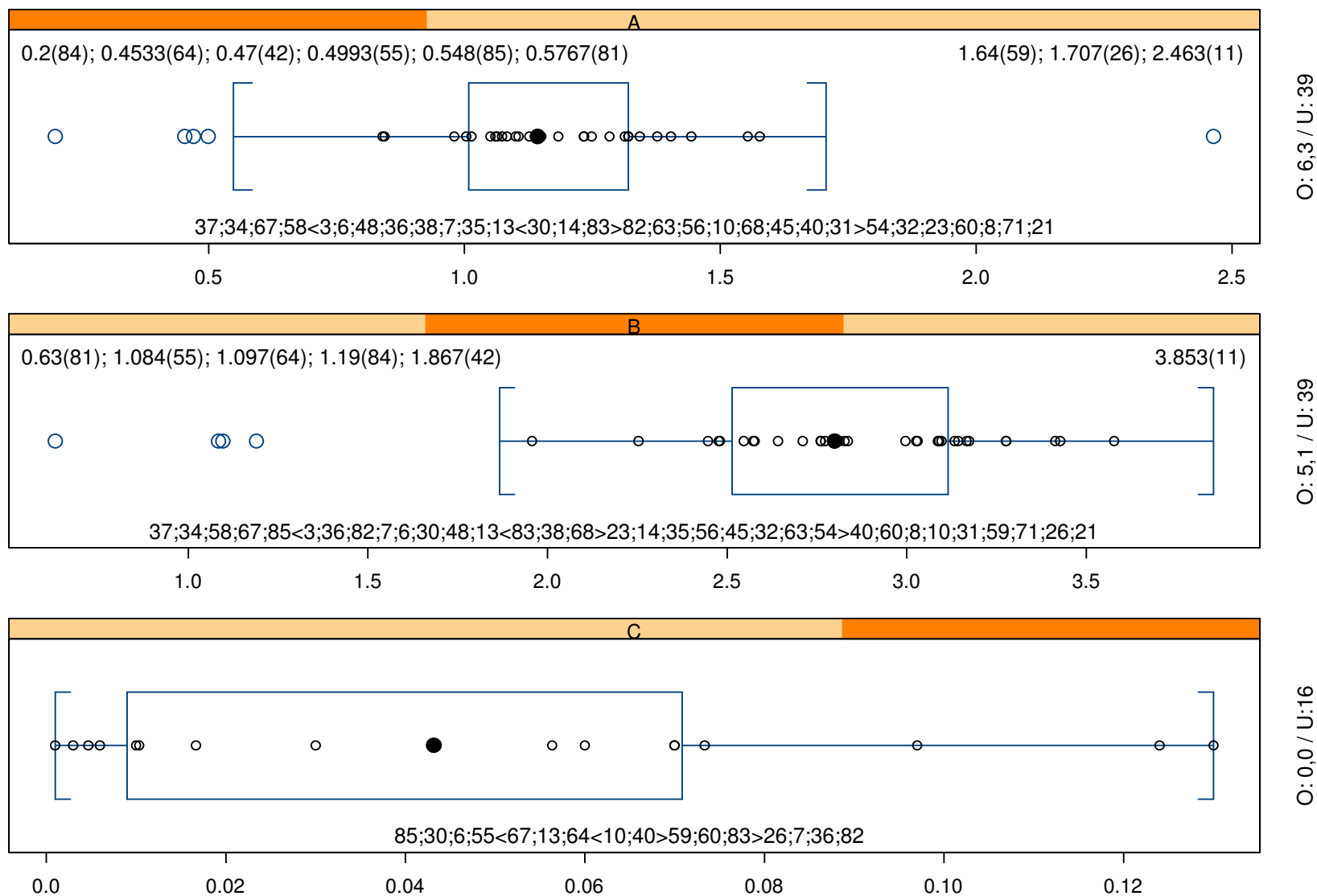


N: 17 NA: 0 Z: 0 E: 0,1 U: 16
a: 0.08269 m: 0.05633 s: 0.1506

Histogram of the means of samples D and E

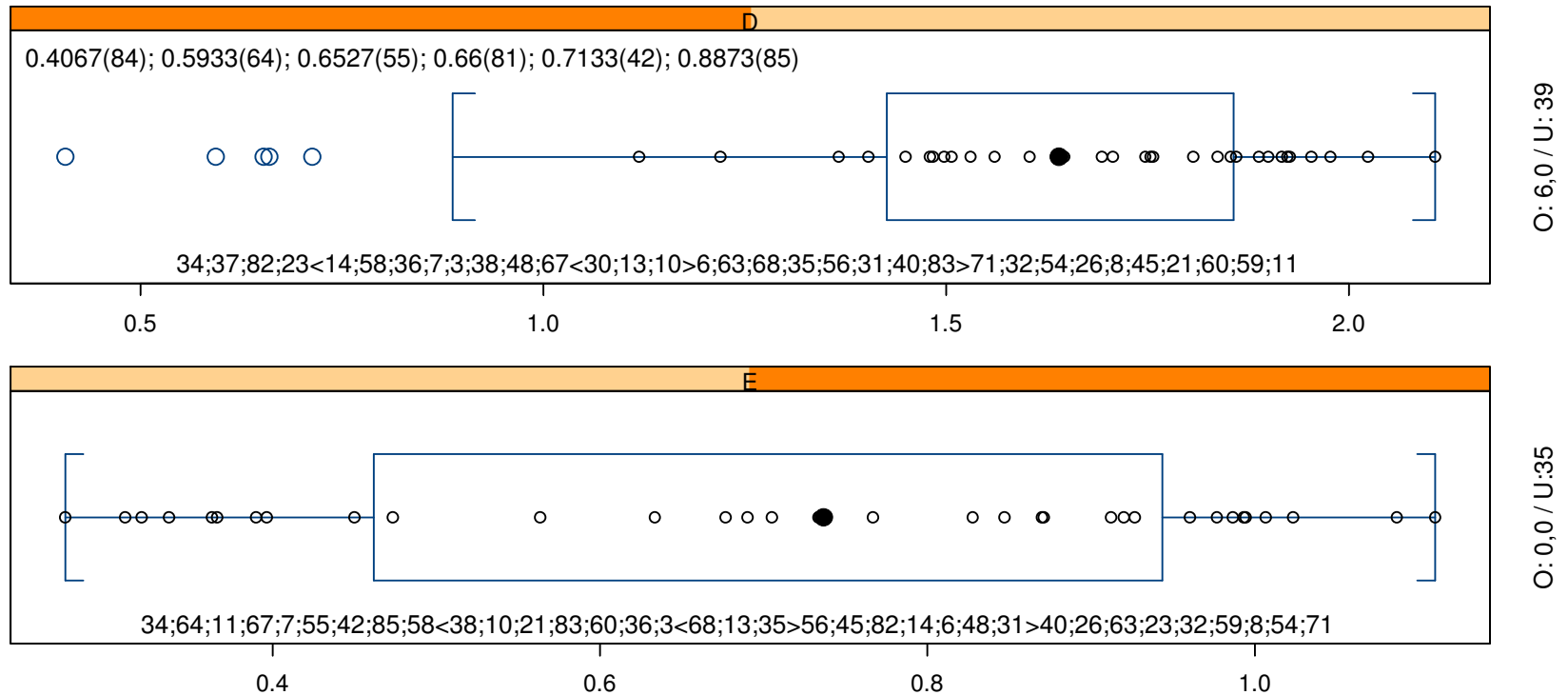


Box plot of the means of samples A, B and C

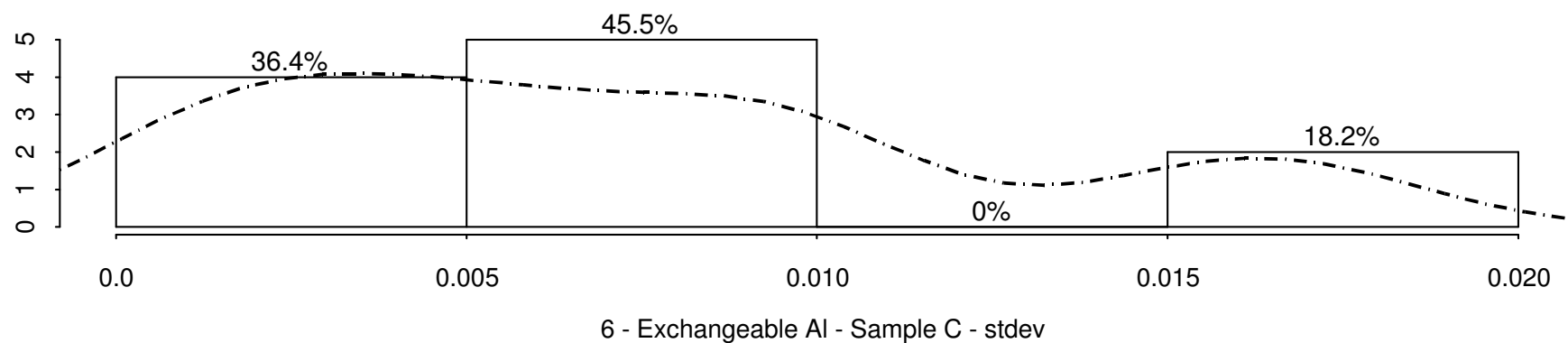
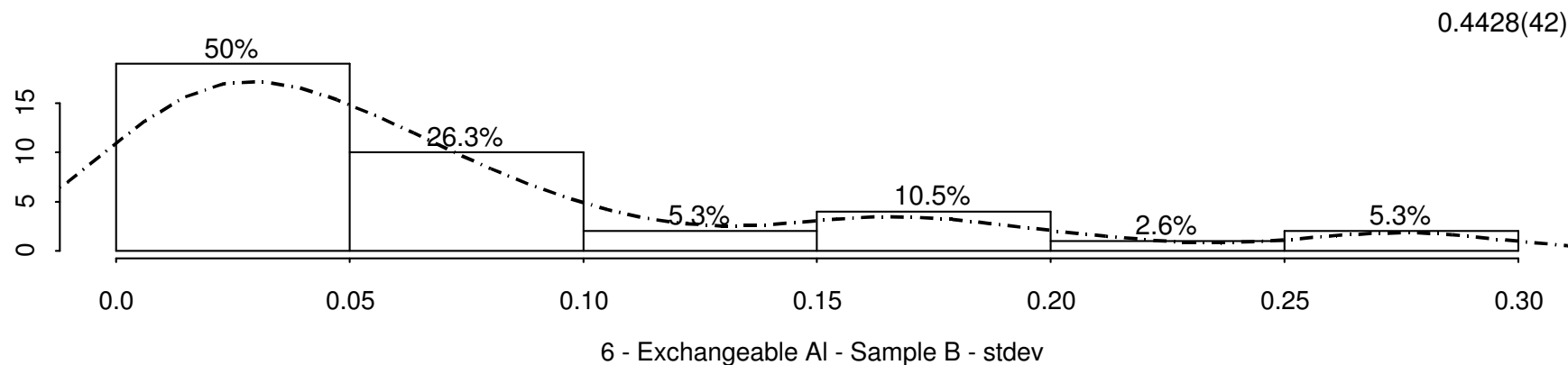
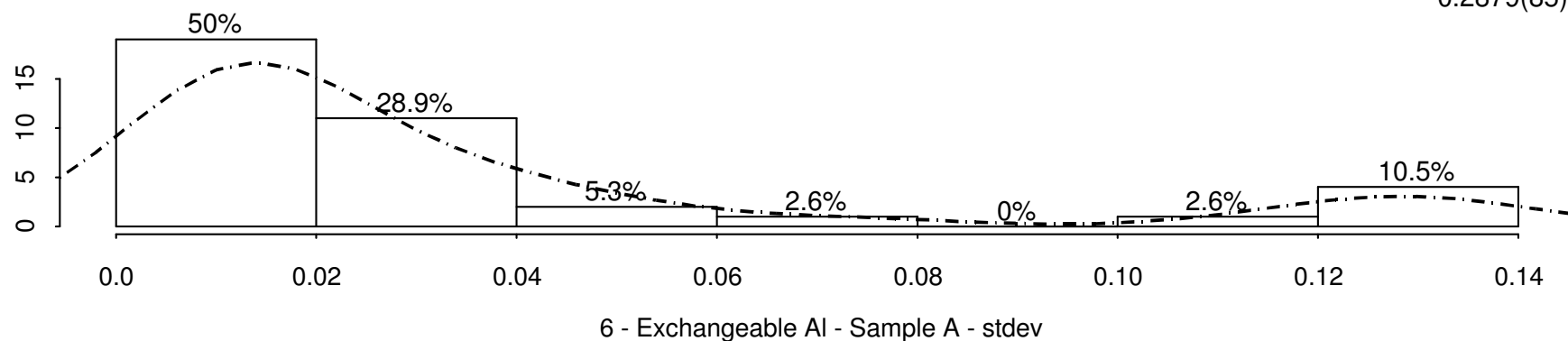


6 - Exchangeable Al - mean

Box plot of the means of samples D and E

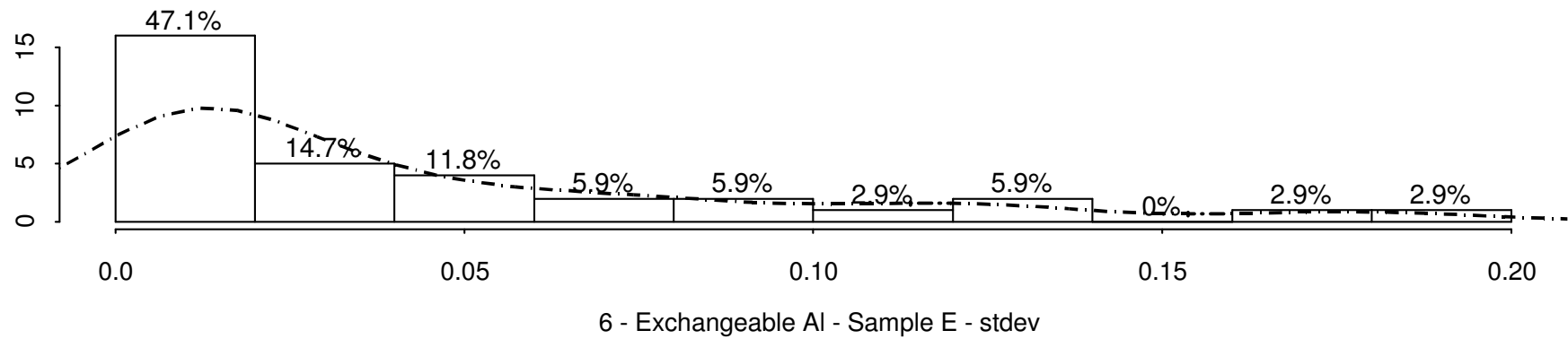
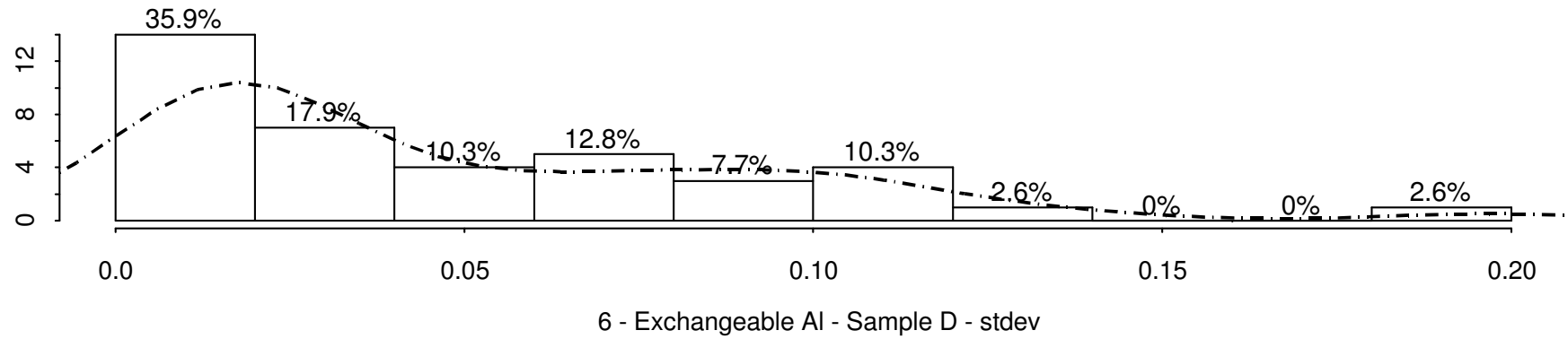


Histogram of the standard deviations of samples A, B and C



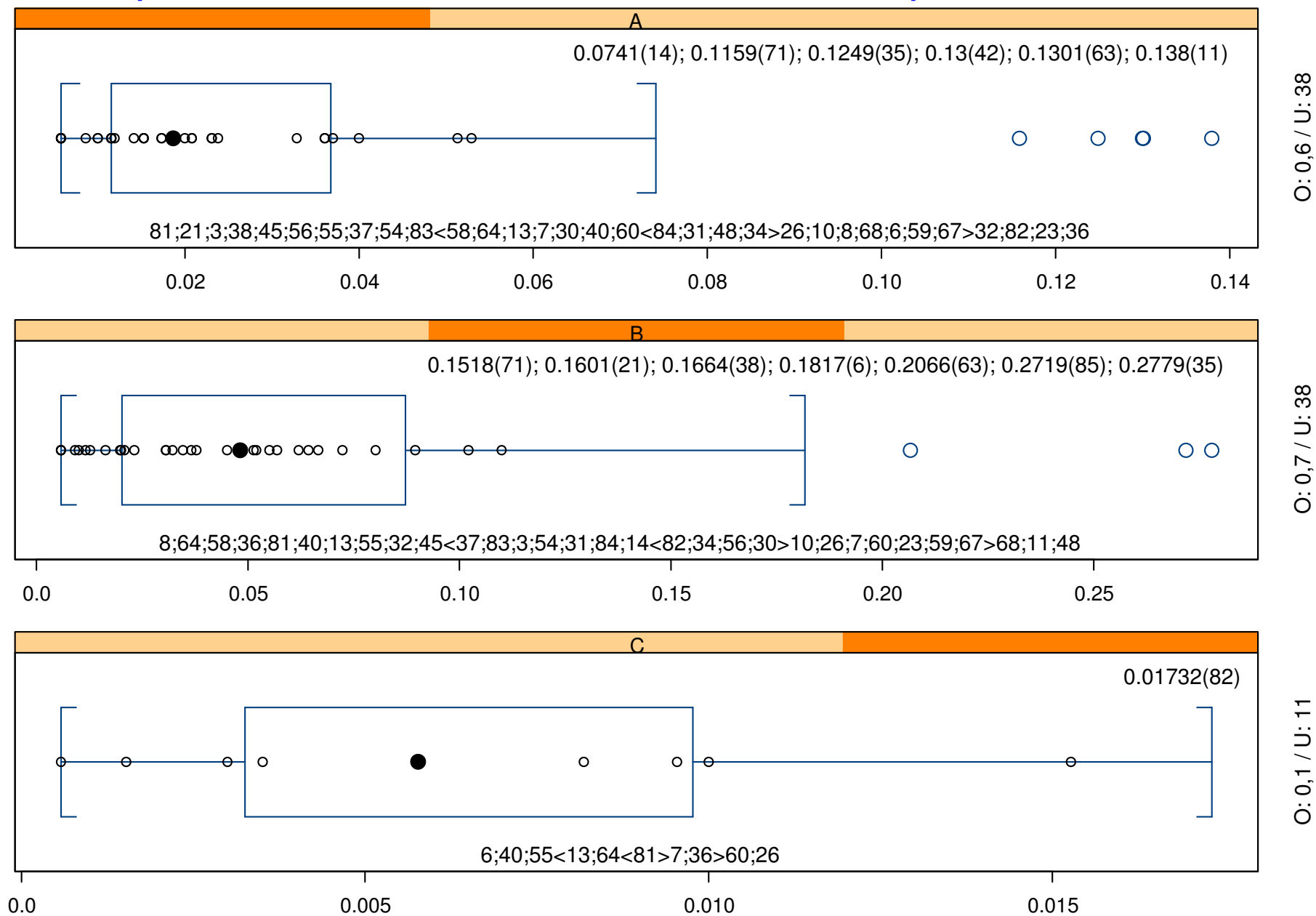
N: 39 NA: 0 Z: 0 E: 0.1 U: 38
0.007317 m: 0.005414 s: 0.0926 a: 0.04162 m: 0.02 s: 0.05625

Histogram of the standard deviations of samples D and E



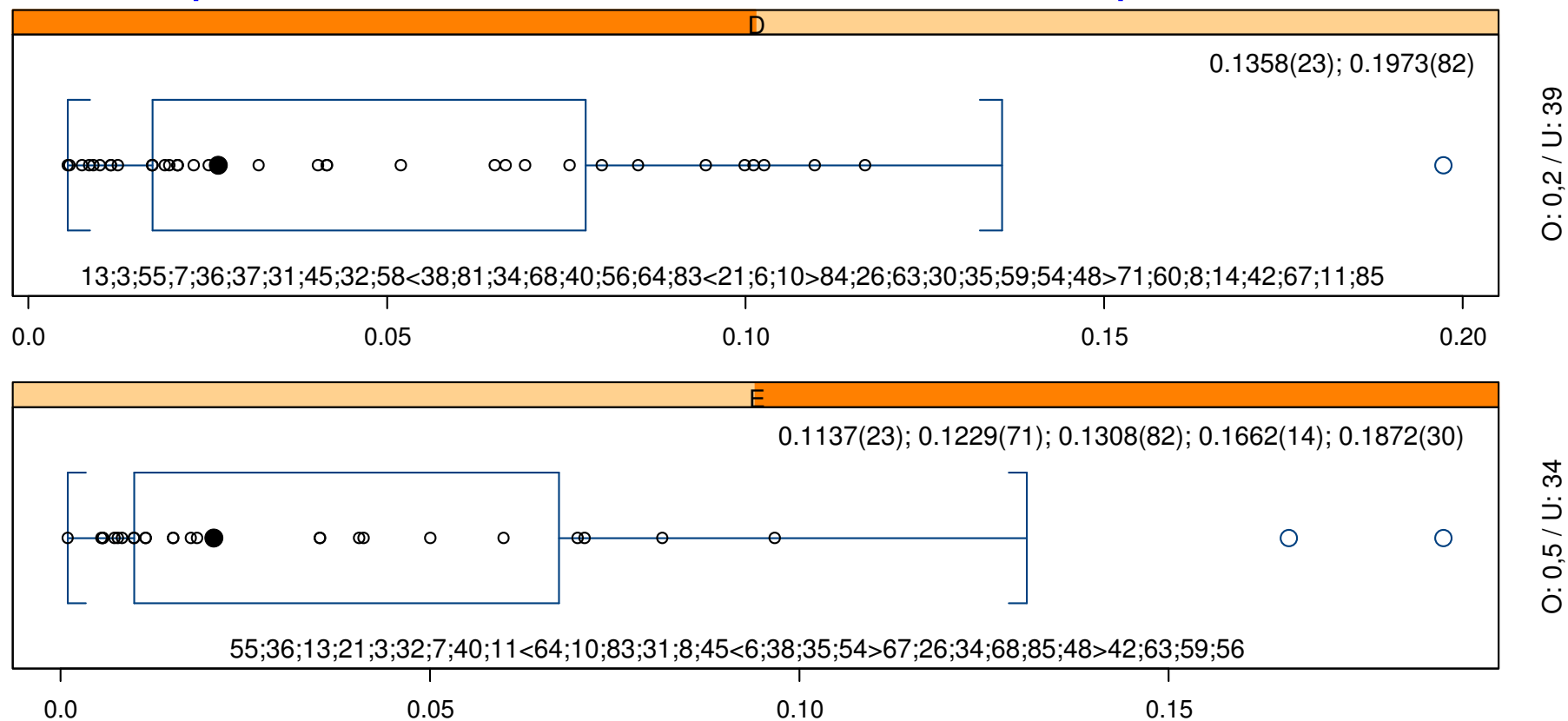
N: 39 NA: 0 Z: 0 E: 0 U: 39
a: 0.04475 m: 0.02082 s: 0.04946a: 0.04915 m: 0.0265 s: 0.04464

Box plot of the standard deviations of samples A, B and C



6 - Exchangeable Al - stdev

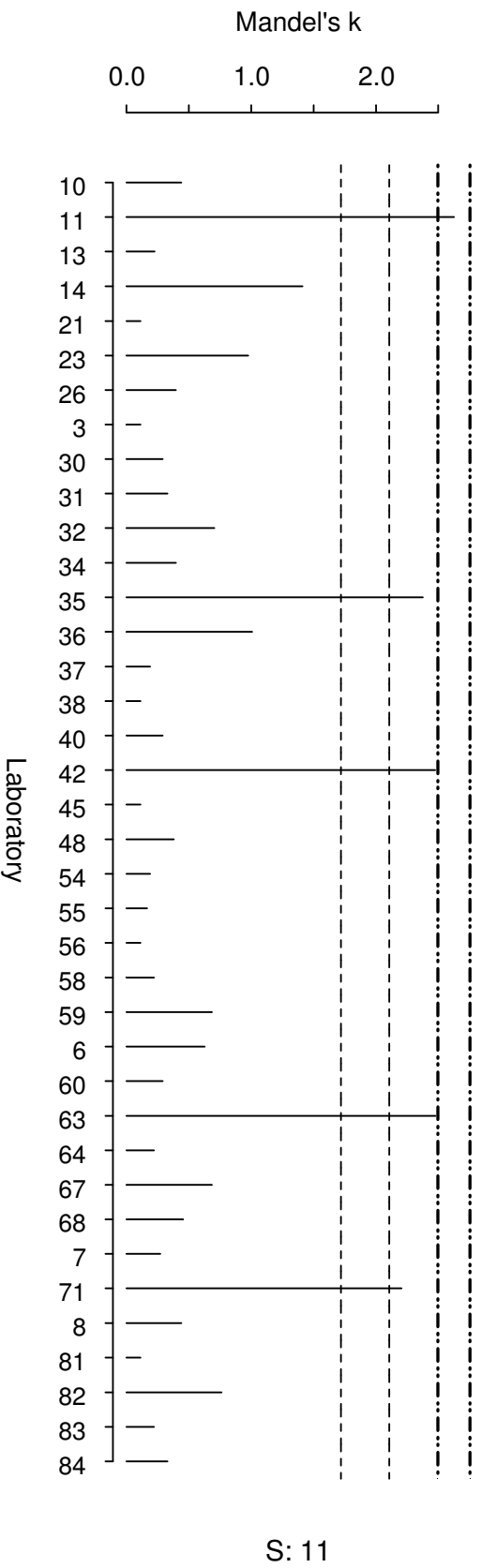
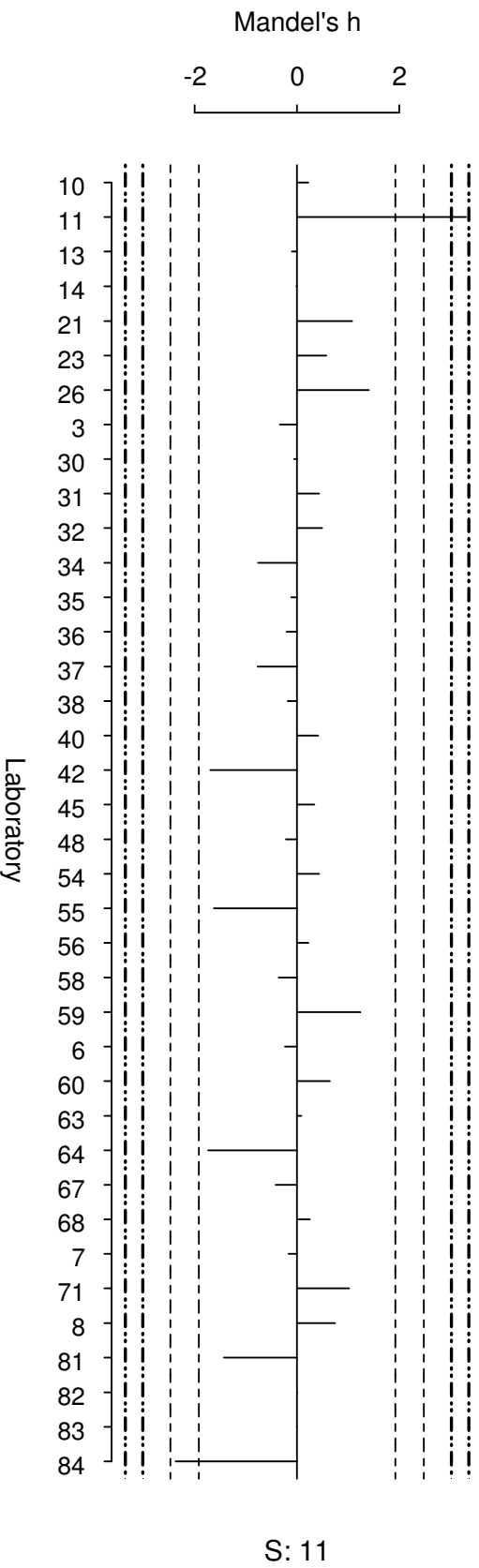
Box plot of the standard deviations of samples D and E



Mandel's h and k plots of sample A

6 - Exchangeable AI - Sample A

Step:2; Nlab:38; Mgen:1.148; Fval:172.9; Pval:0; sRep:0.05254; sLab:0.3977; sRpr:0.4012; CV:34.95

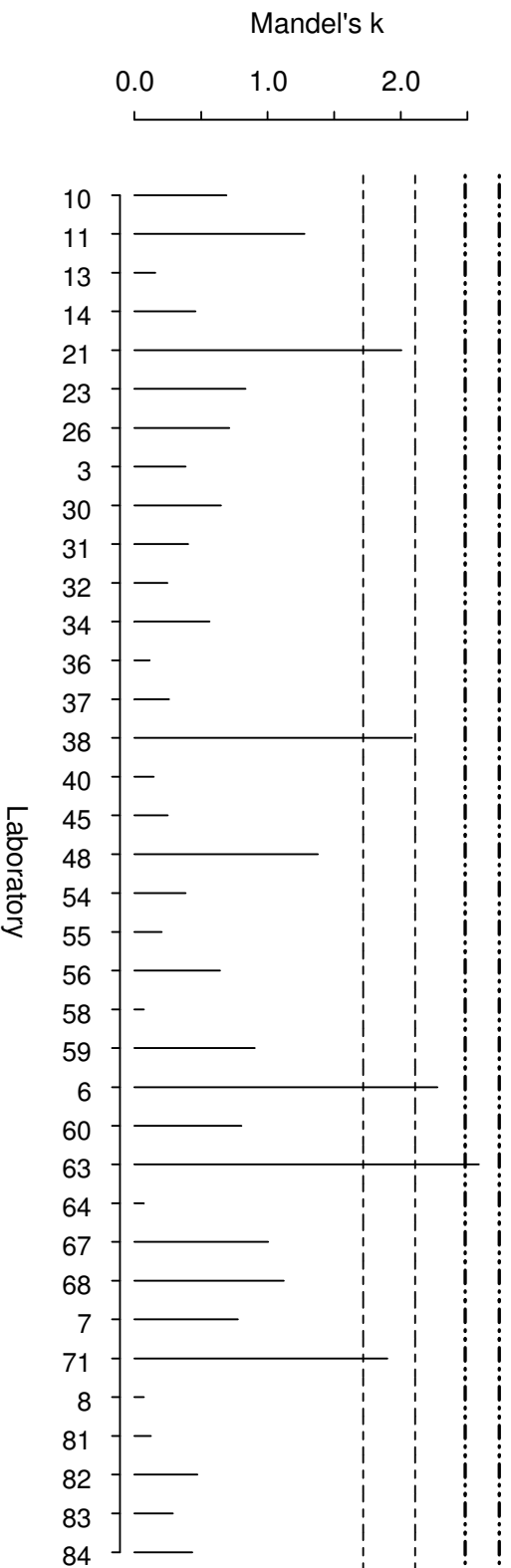
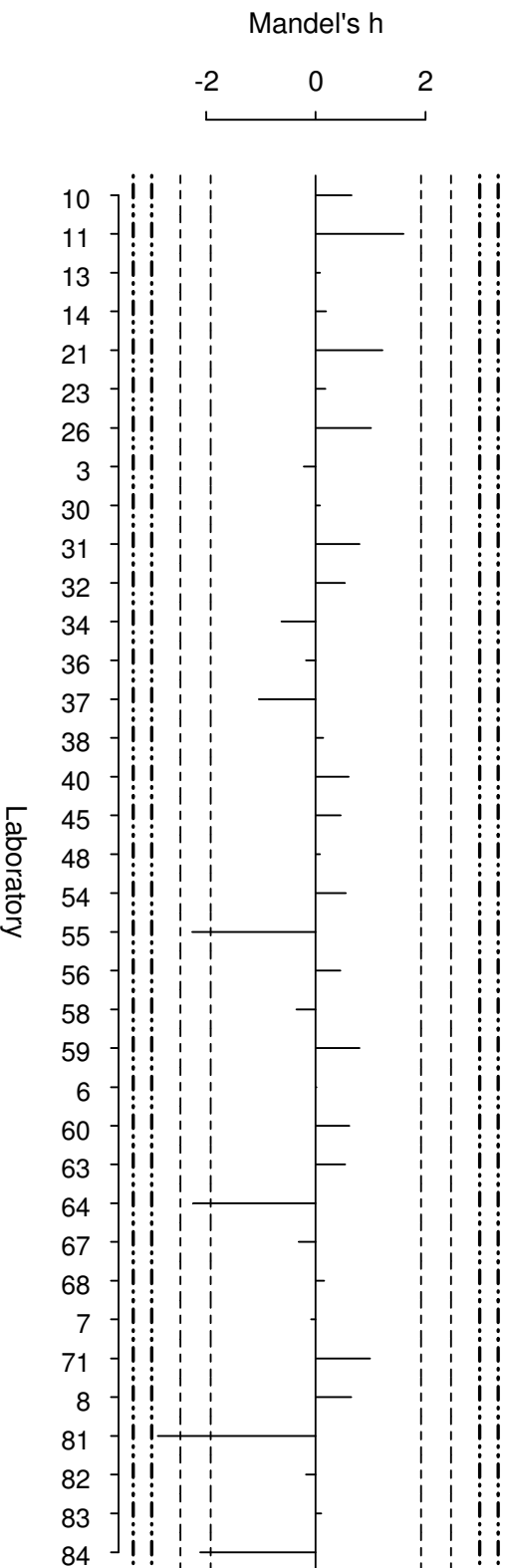


E: k85

Mandel's h and k plots of sample B

6 - Exchangeable AI - Sample B

Step:4; Nlab:36; Mgen:2.702; Fval:242.3; Pval:0; sRep:0.0799; sLab:0.7166; sRpr:0.721; CV:26.68



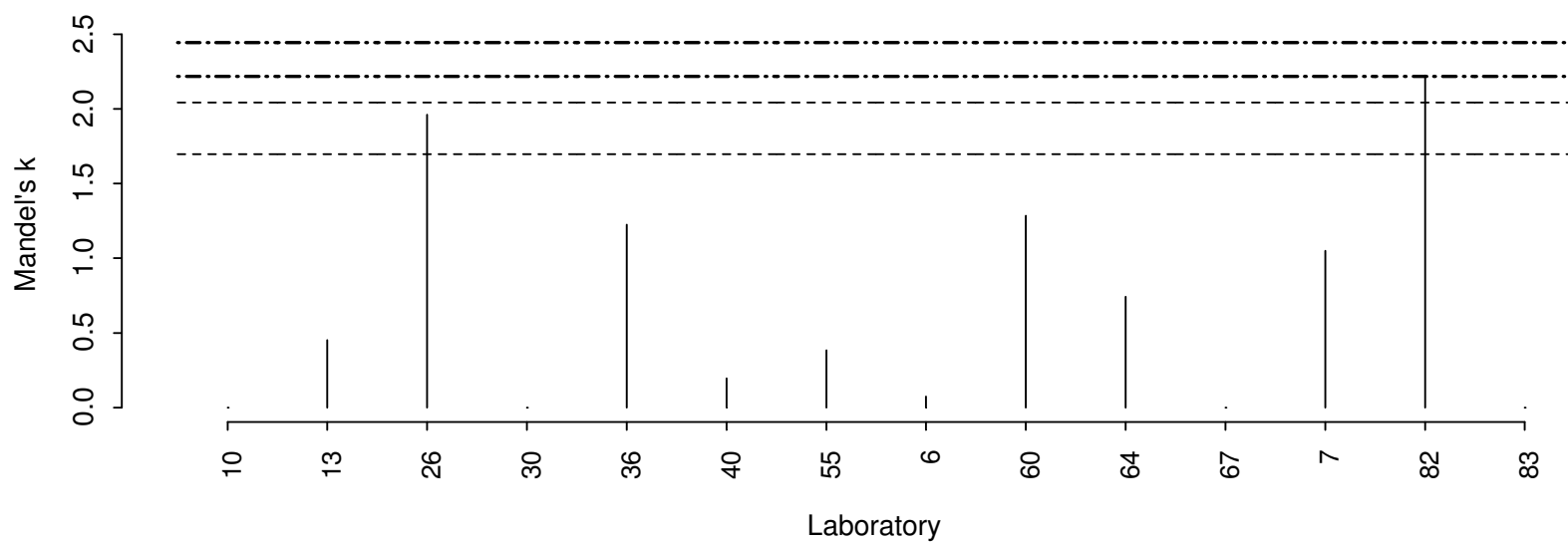
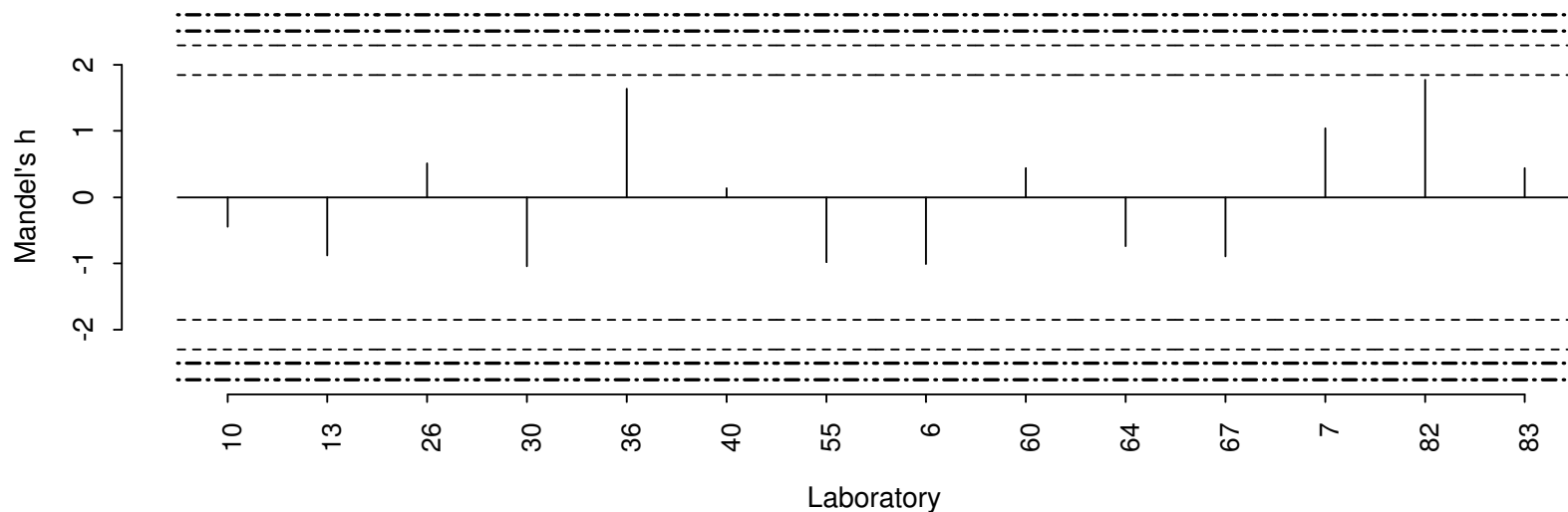
S: 63

E: k42;k35;k85

Mandel's h and k plots of sample C

6 - Exchangeable Al - Sample C

Step:2; Nlab:14; Mgen:0.0501; Fval:100.3; Pval:0; sRep:0.007786; sLab:0.0448; sRpr:0.04547; CV:90.77



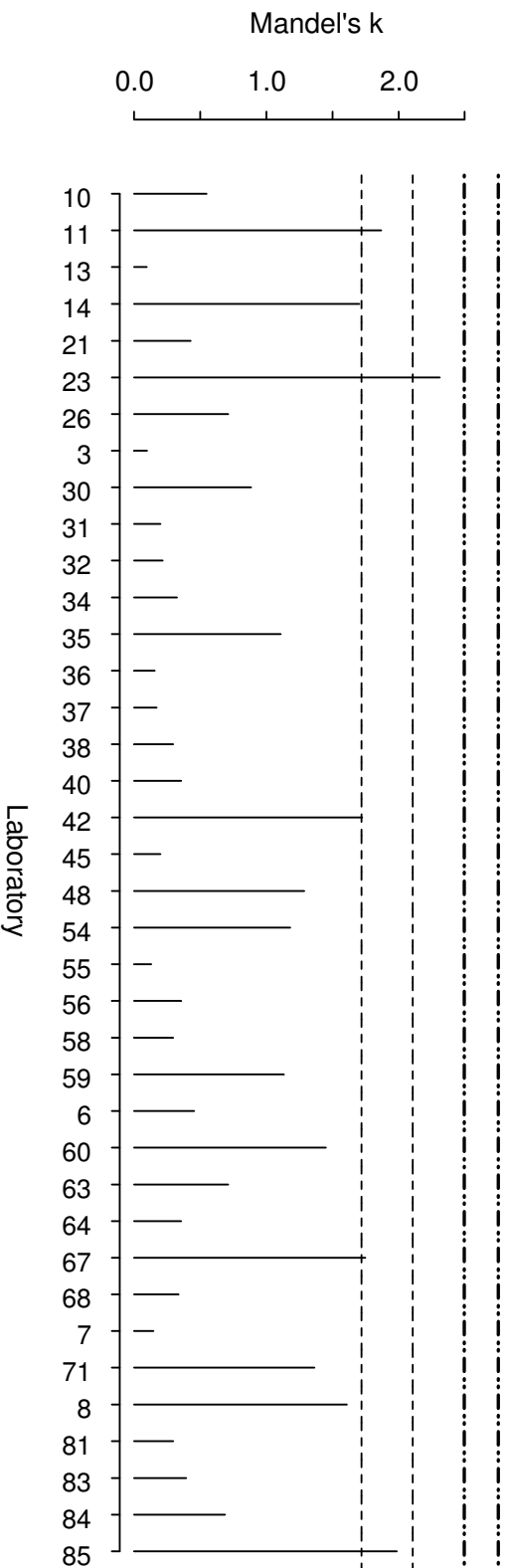
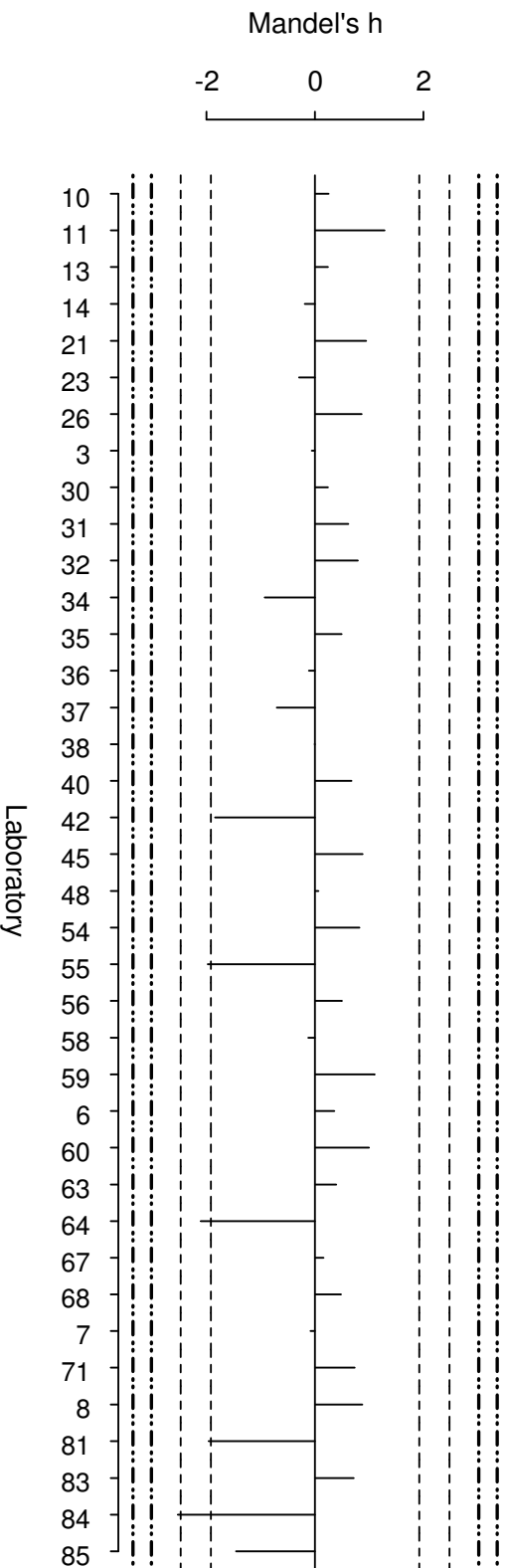
E: h81

S: 82

Mandel's h and k plots of sample D

6 - Exchangeable AI - Sample D

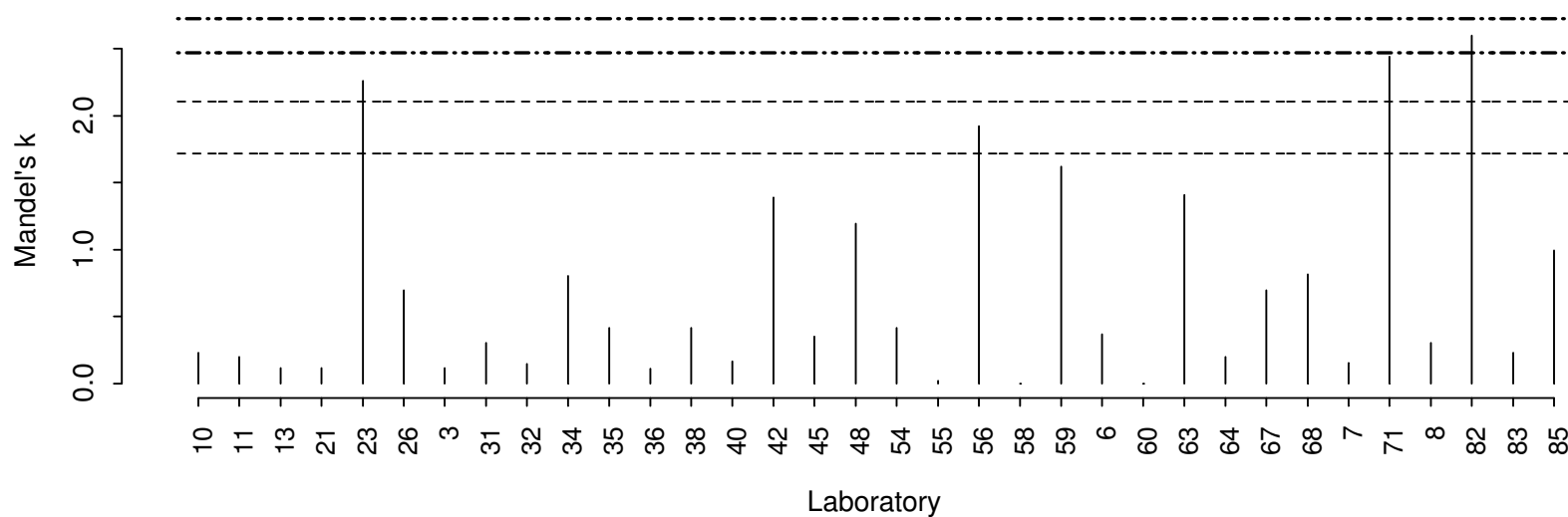
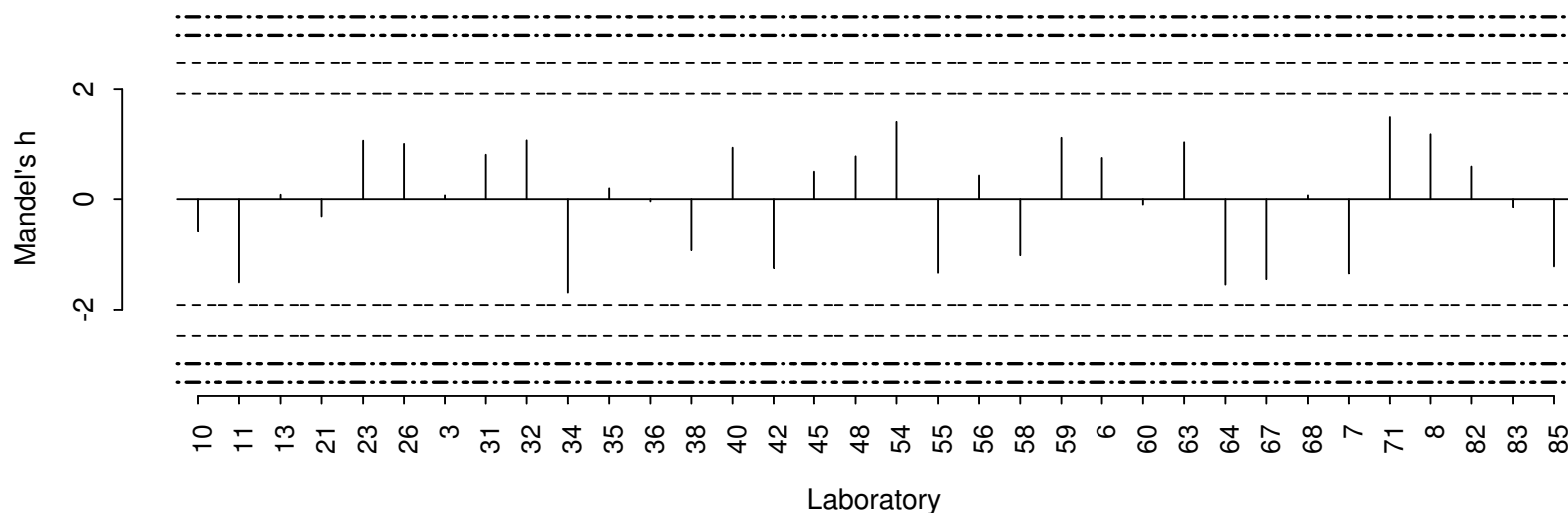
Step:2; Nlab:38; Mgen:1.535; Fval:173; Pval:0; sRep:0.05872; sLab:0.4445; sRpr:0.4484; CV:29.22



Mandel's h and k plots of sample E

6 - Exchangeable Al - Sample E

Step:3; Nlab:34; Mgen:0.7164; Fval:82.07; Pval:0; sRep:0.05034; sLab:0.2617; sRpr:0.2665; CV:37.19



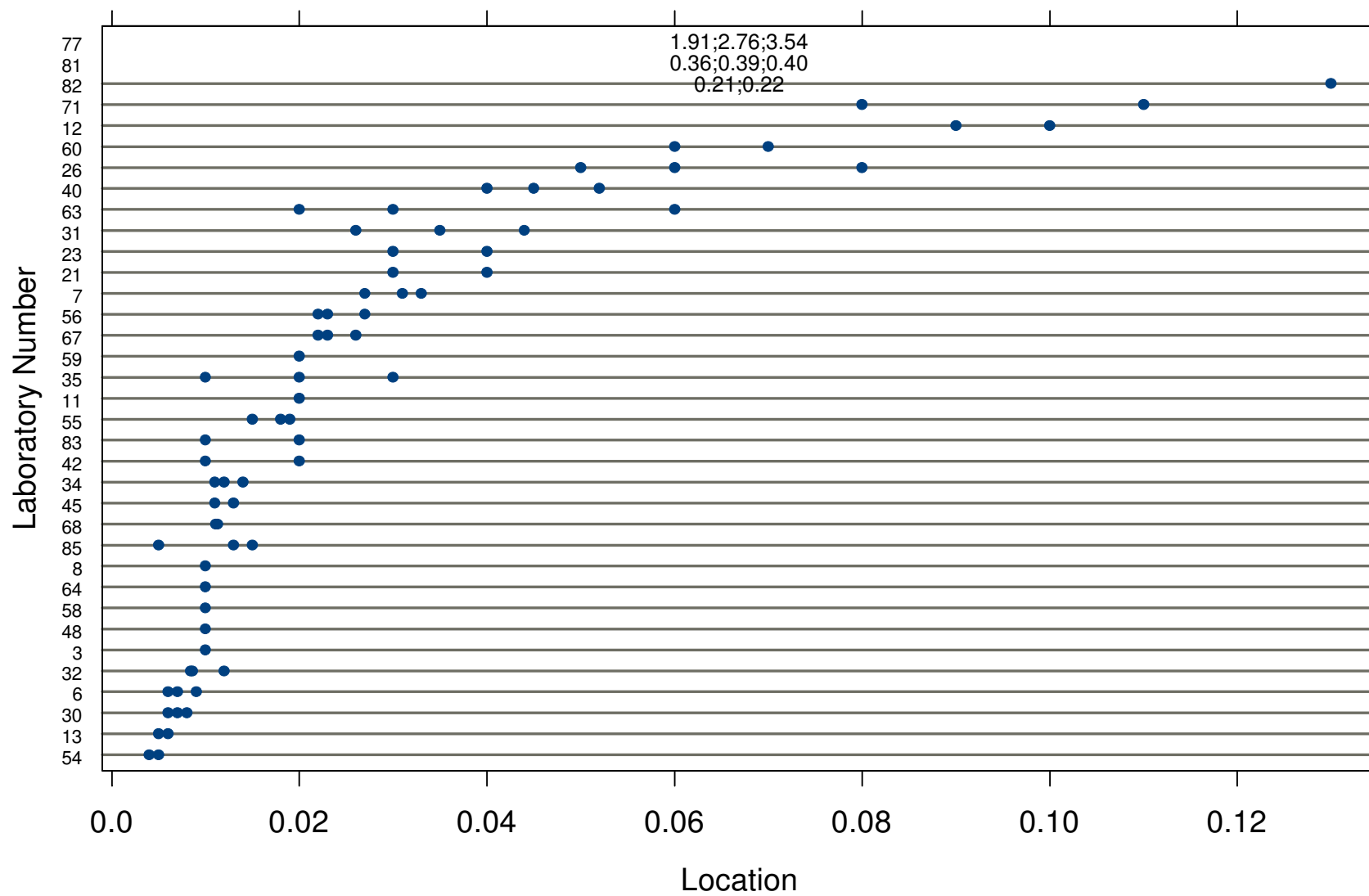
S: 82

E: hk30;k14

Exchangeable Fe

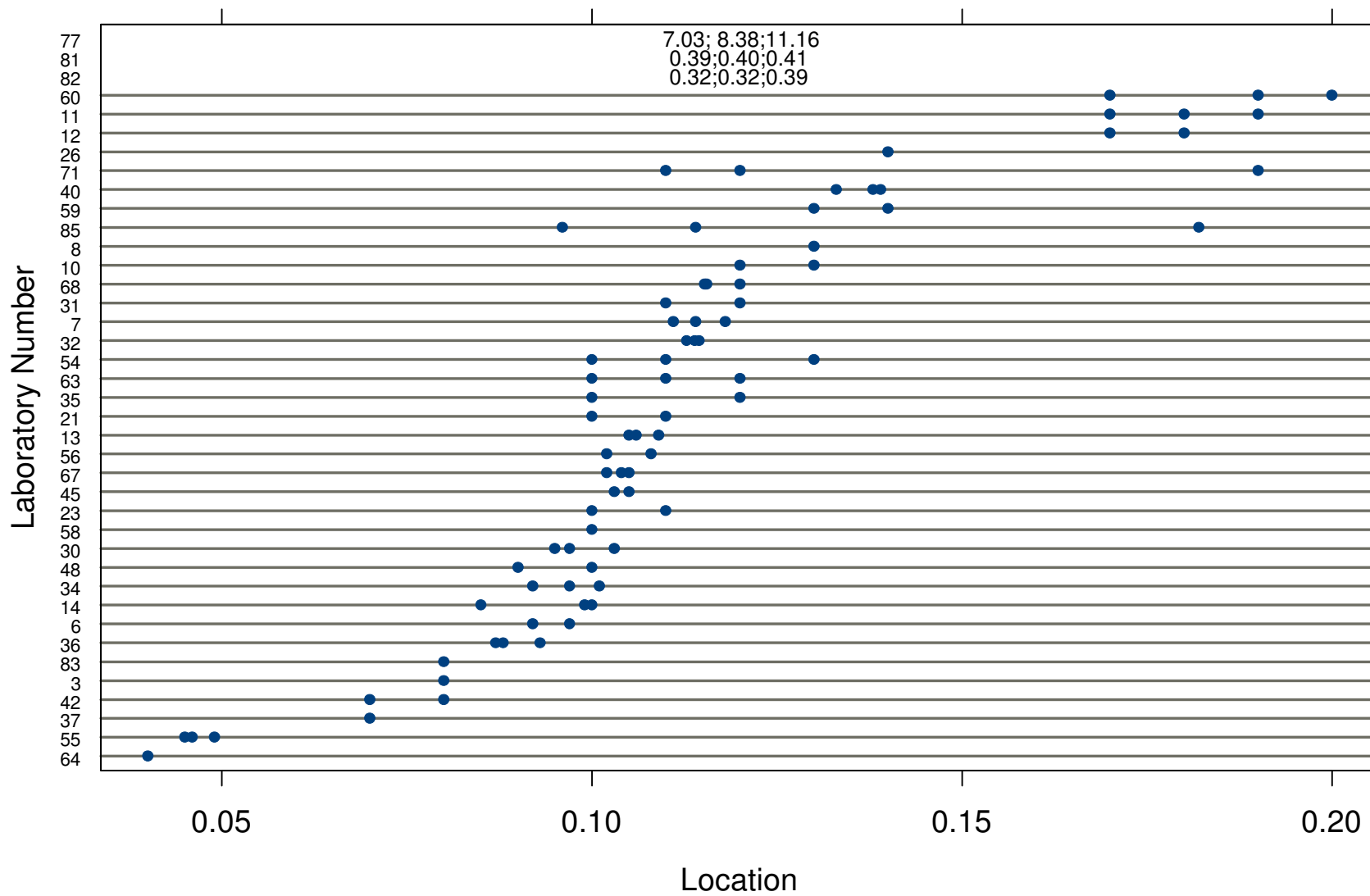
Dot plot sample A

6 - Exchangeable Fe - Sample A



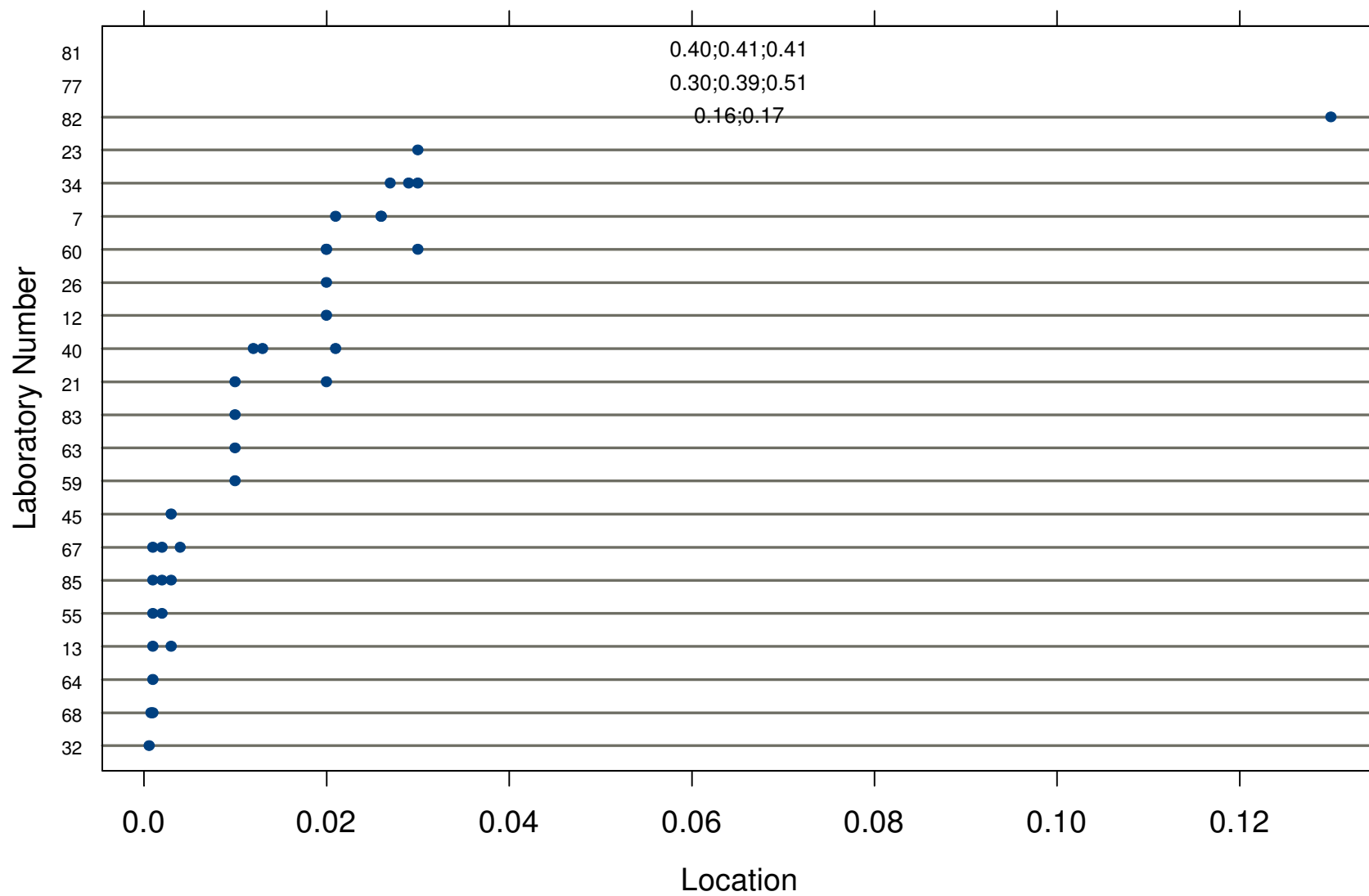
Dot plot sample B

6 - Exchangeable Fe - Sample B



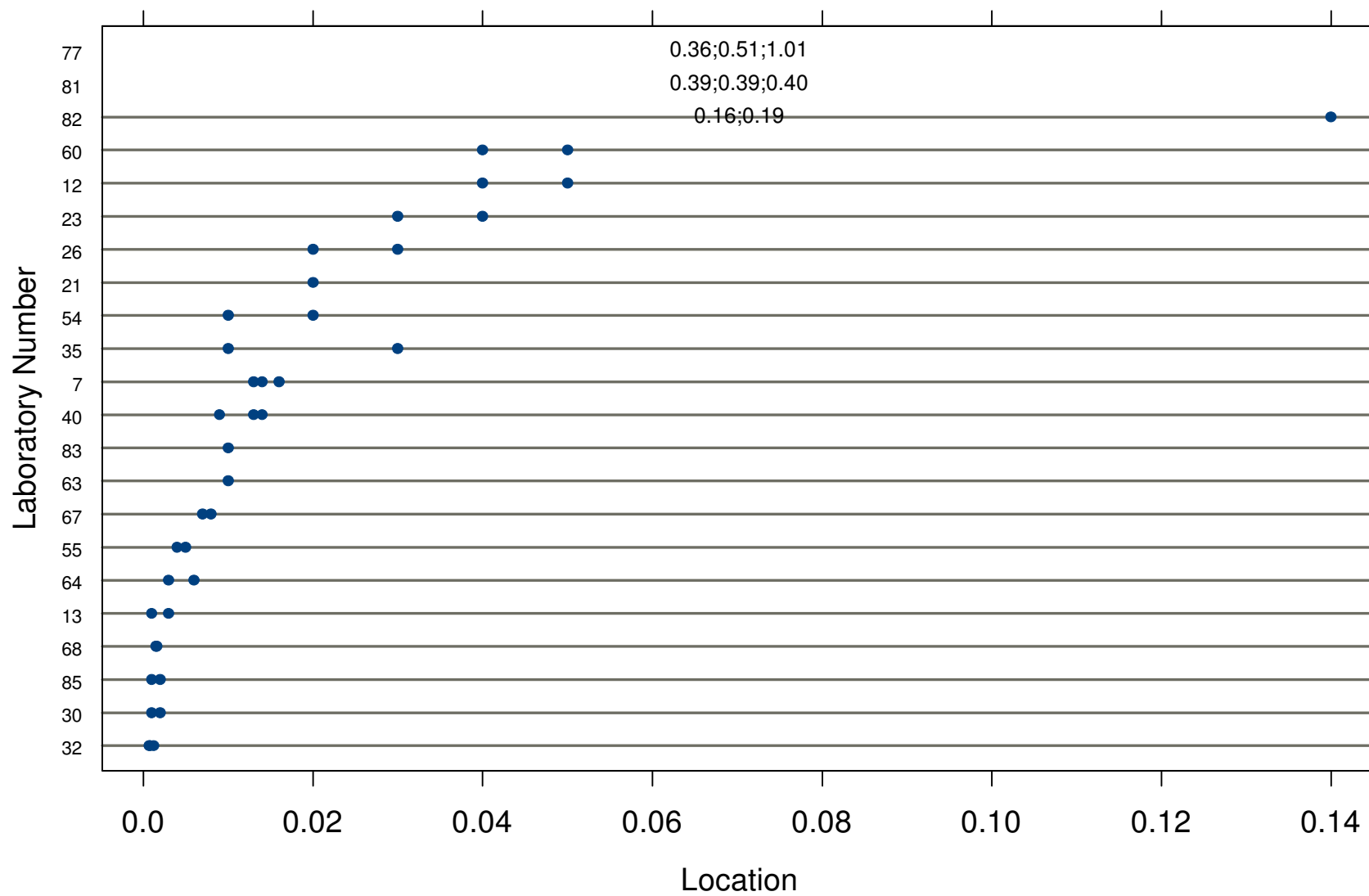
Dot plot sample C

6 - Exchangeable Fe - Sample C



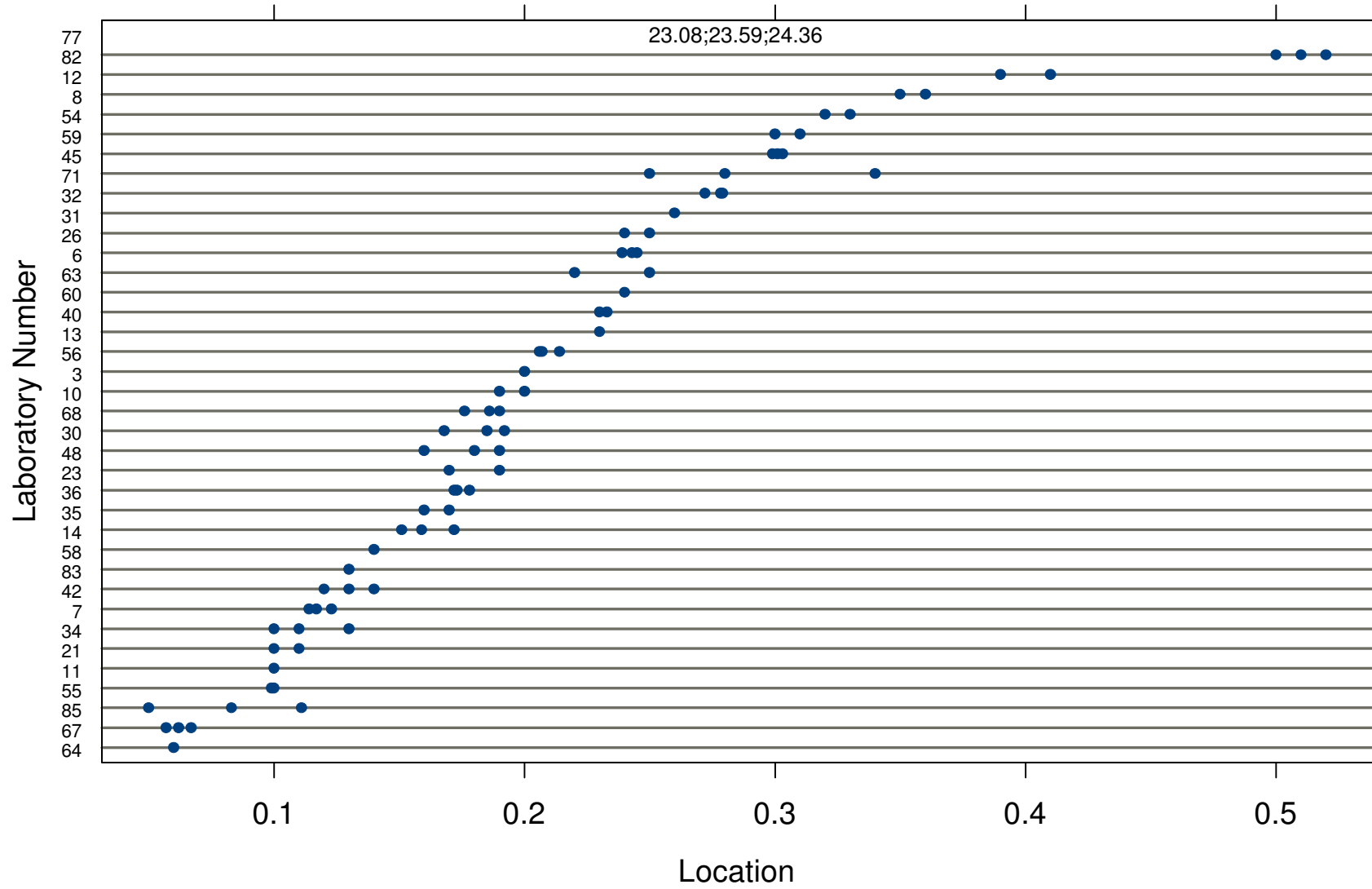
Dot plot sample D

6 - Exchangeable Fe - Sample D

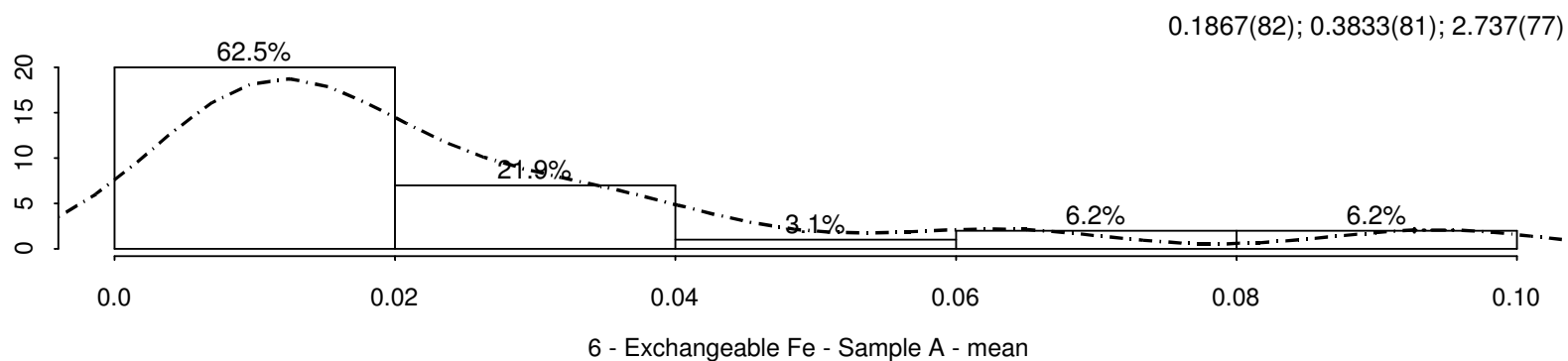


Dot plot sample E

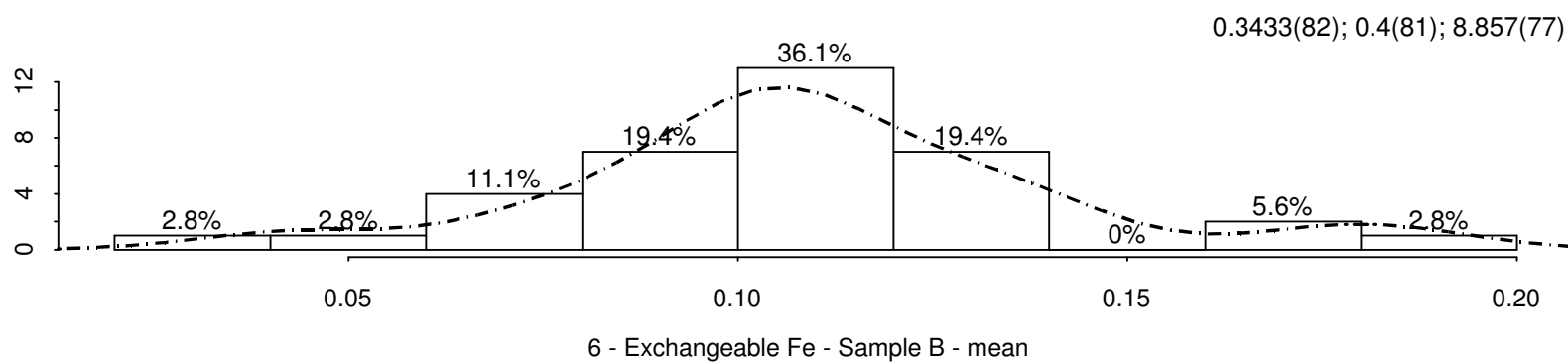
6 - Exchangeable Fe - Sample E



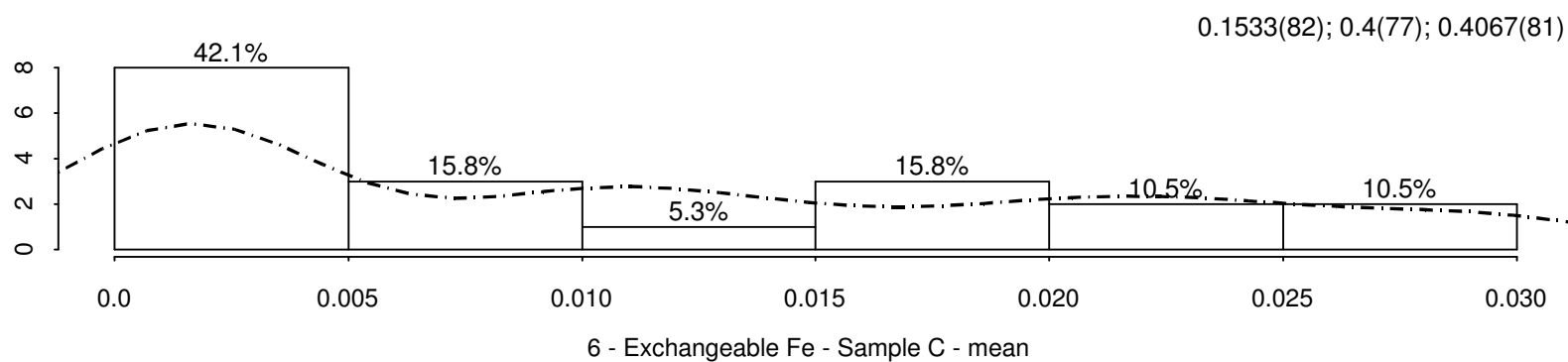
Histogram of the means of samples A, B and C



N: 35 NA: 0 Z: 0 E: 0.3 U: 32
a: 0.1177 m: 0.02 s: 0.4609

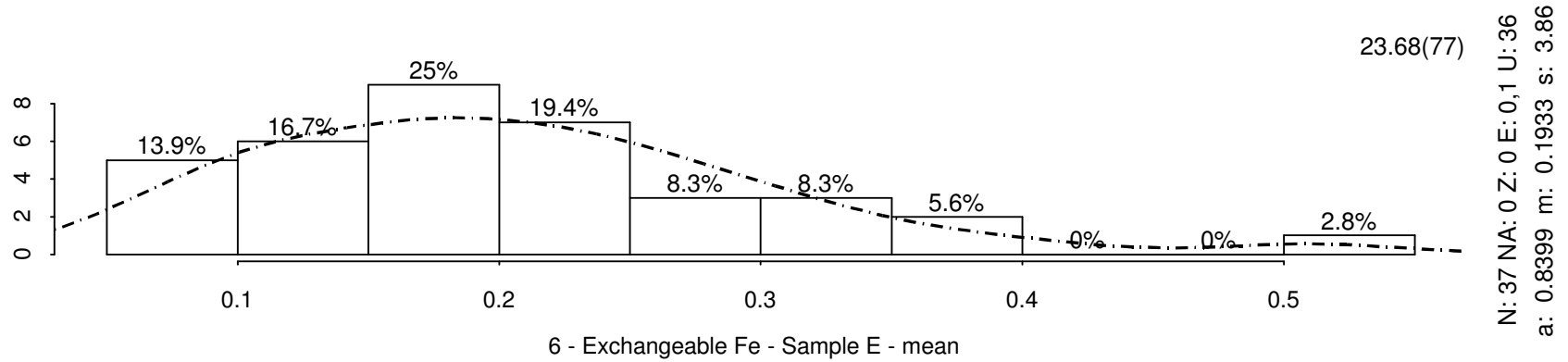
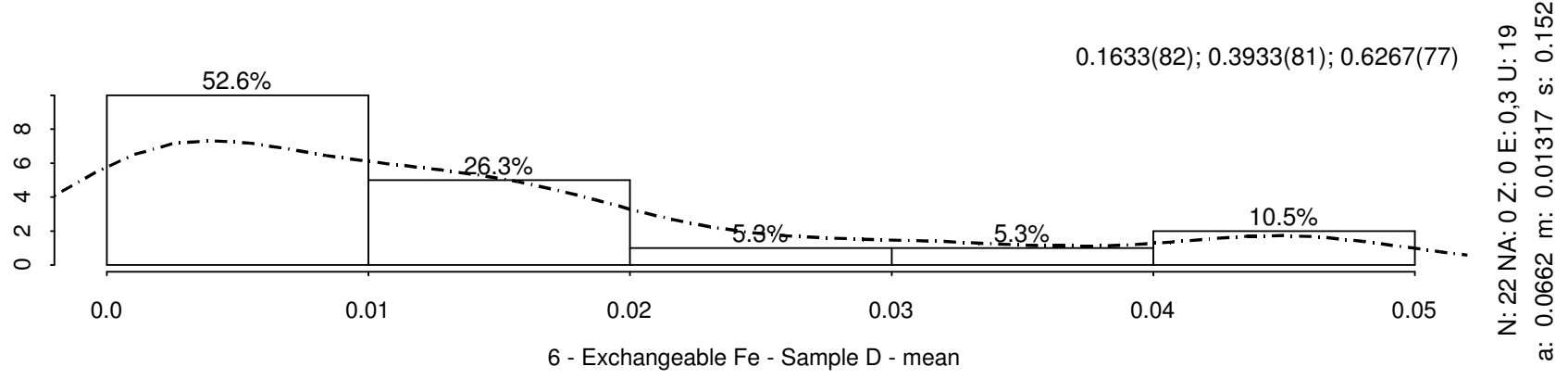


N: 39 NA: 0 Z: 0 E: 0.3 U: 36
a: 0.3476 m: 0.1067 s: 1.4

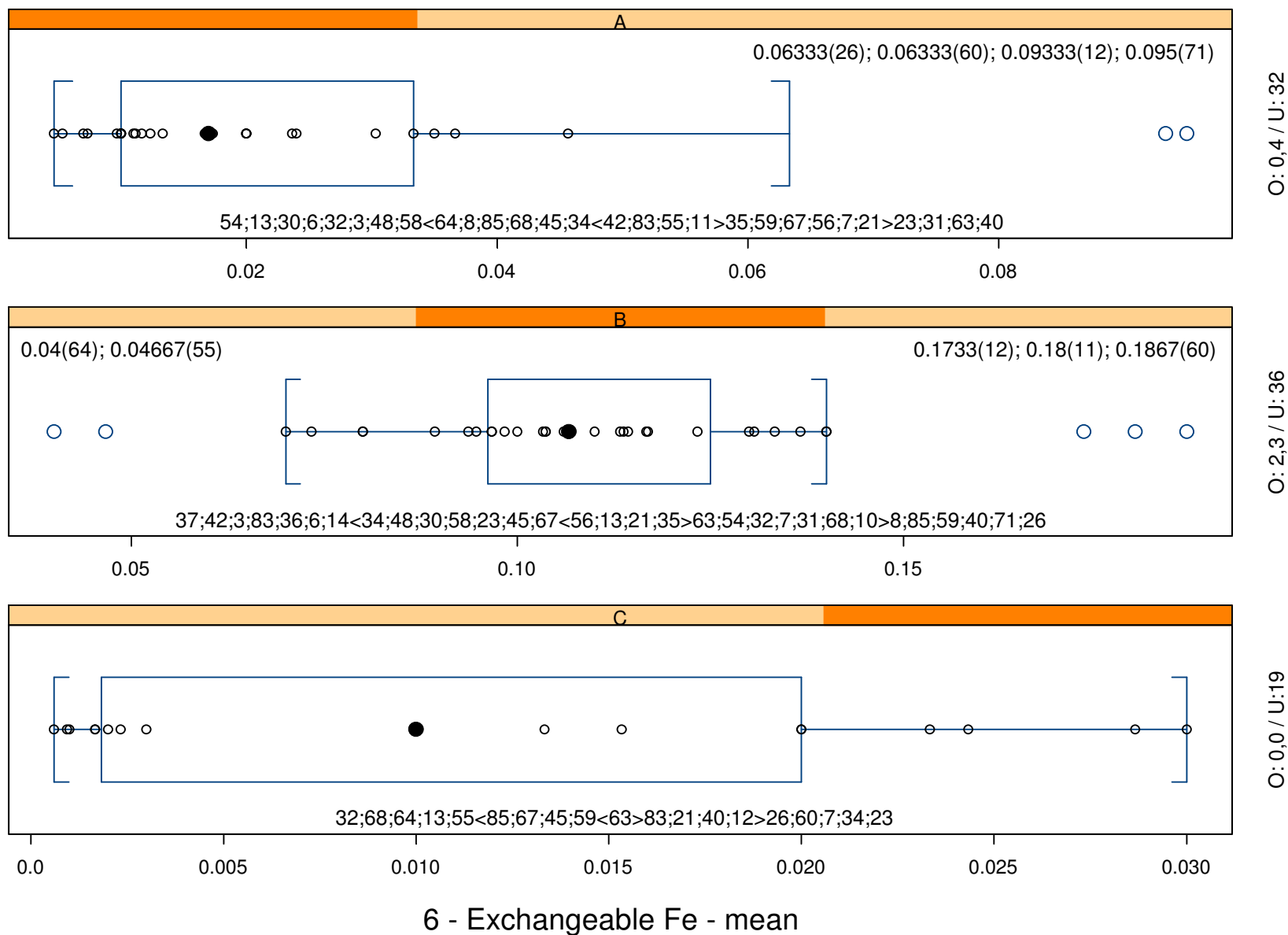


N: 22 NA: 0 Z: 0 E: 0.3 U: 19
a: 0.05355 m: 0.01167 s: 0.1176

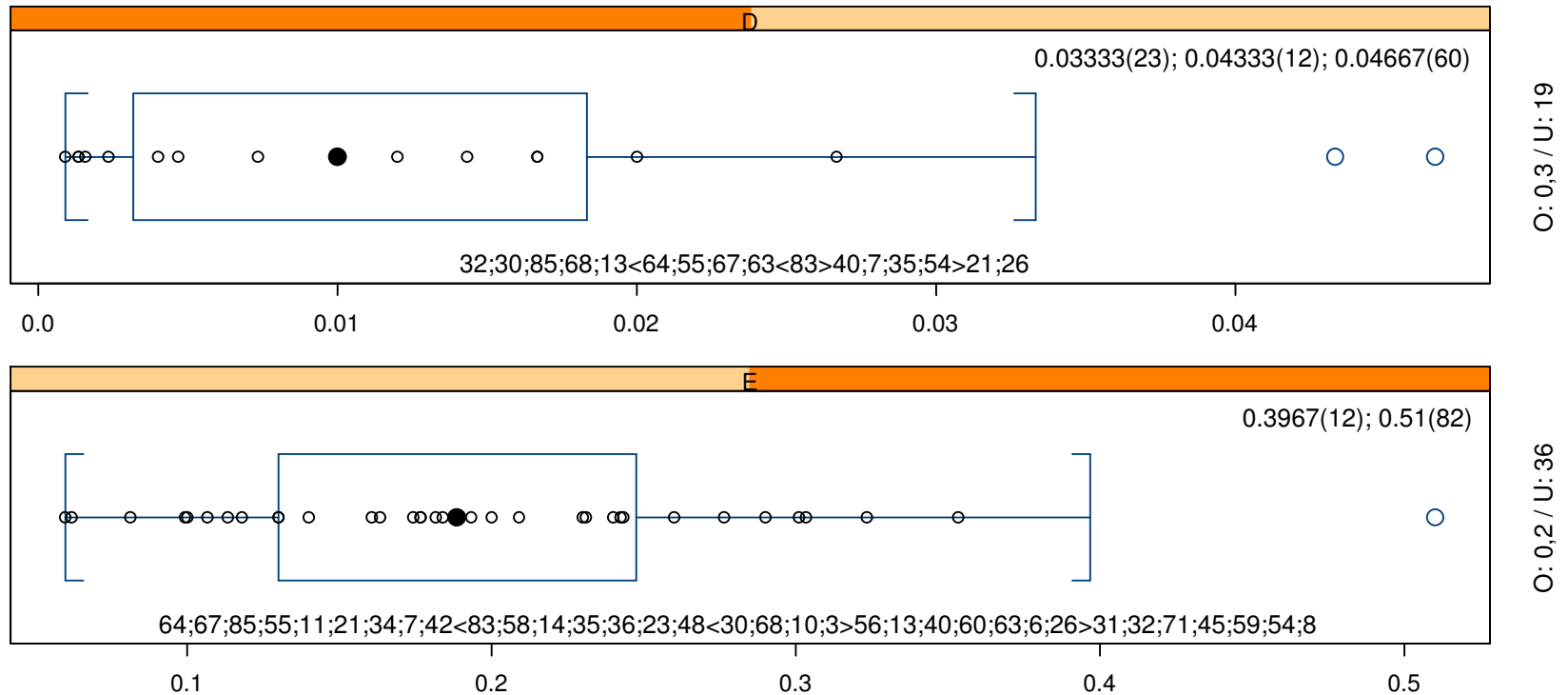
Histogram of the means of samples D and E



Box plot of the means of samples A, B and C

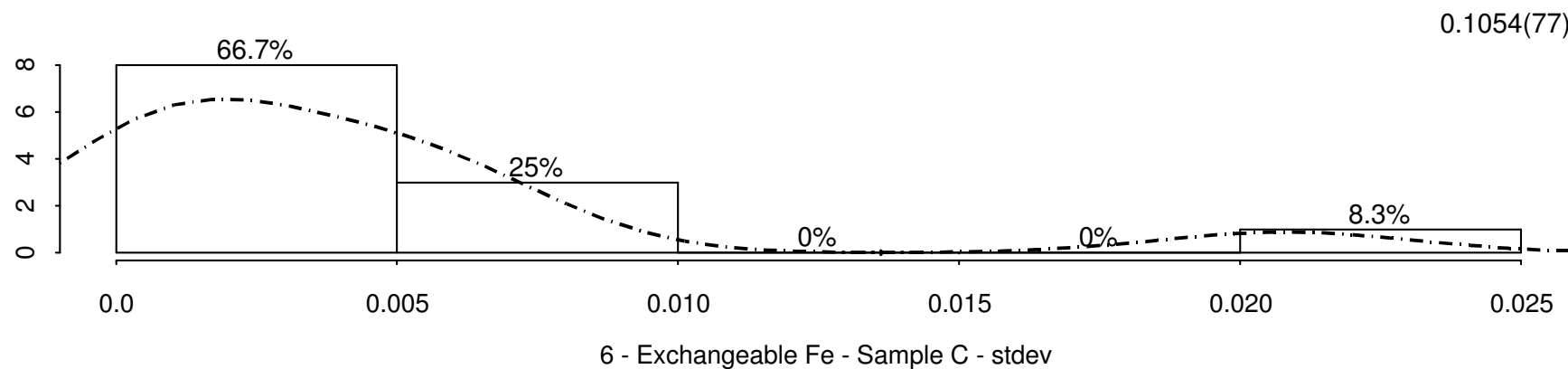
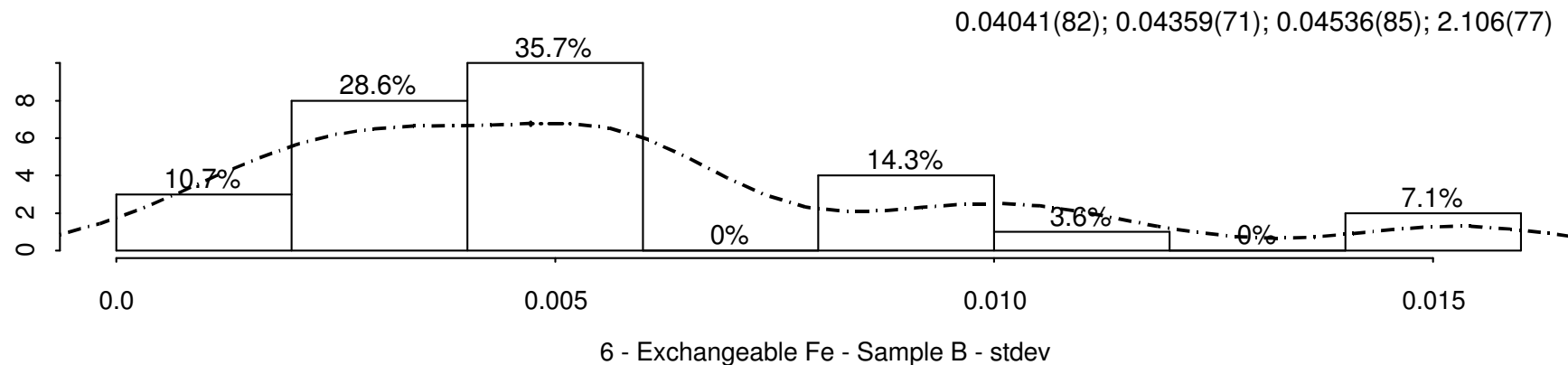
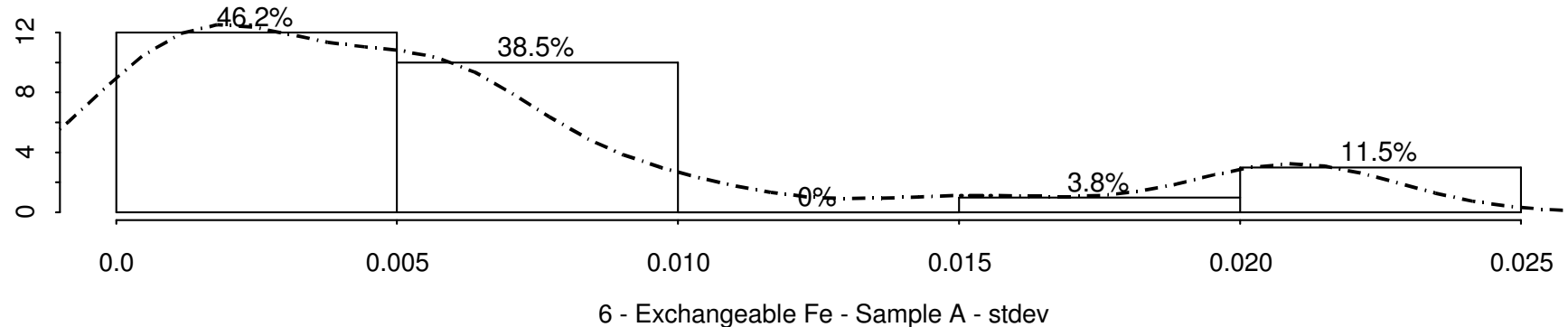


Box plot of the means of samples D and E



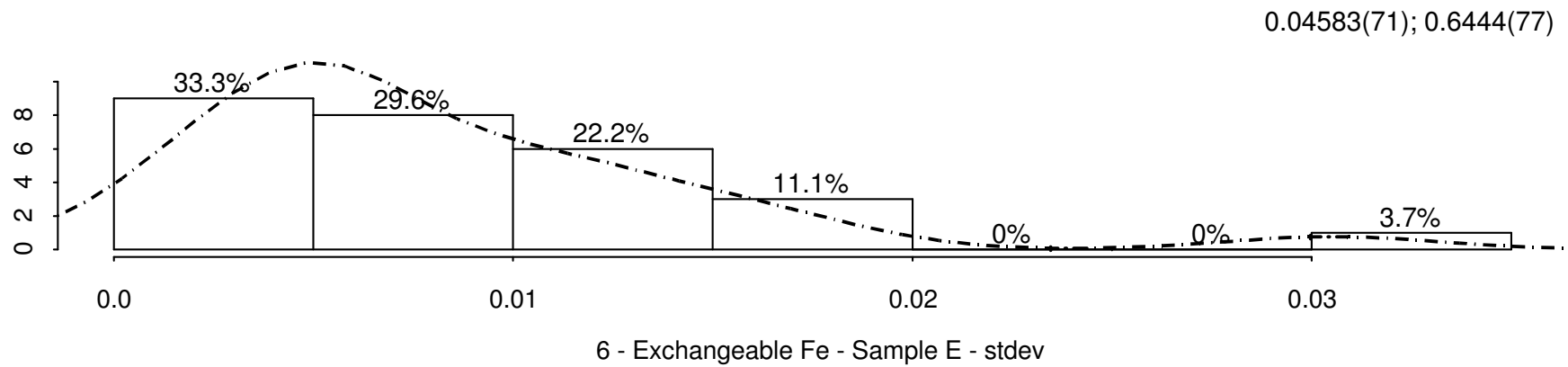
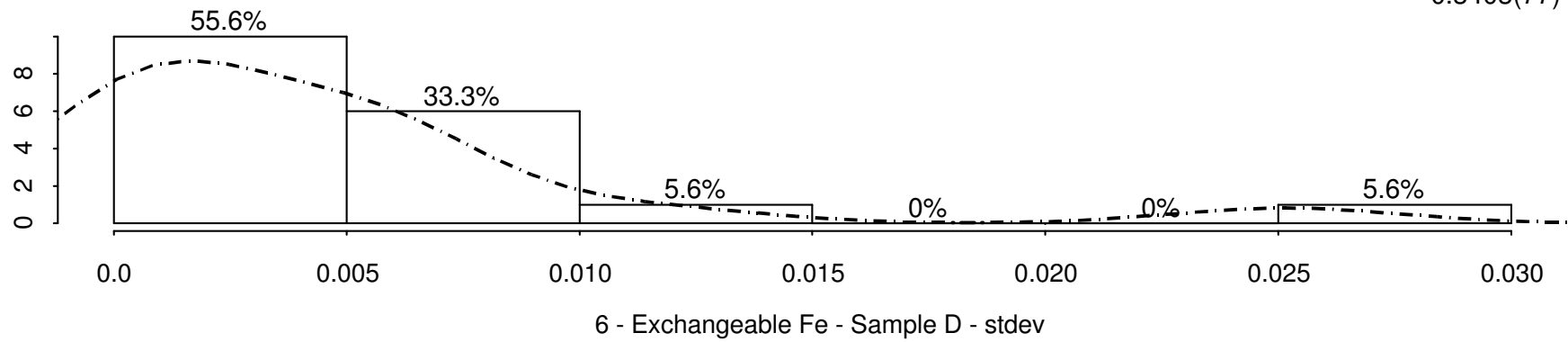
6 - Exchangeable Fe - mean

Histogram of the standard deviations of samples A, B and C



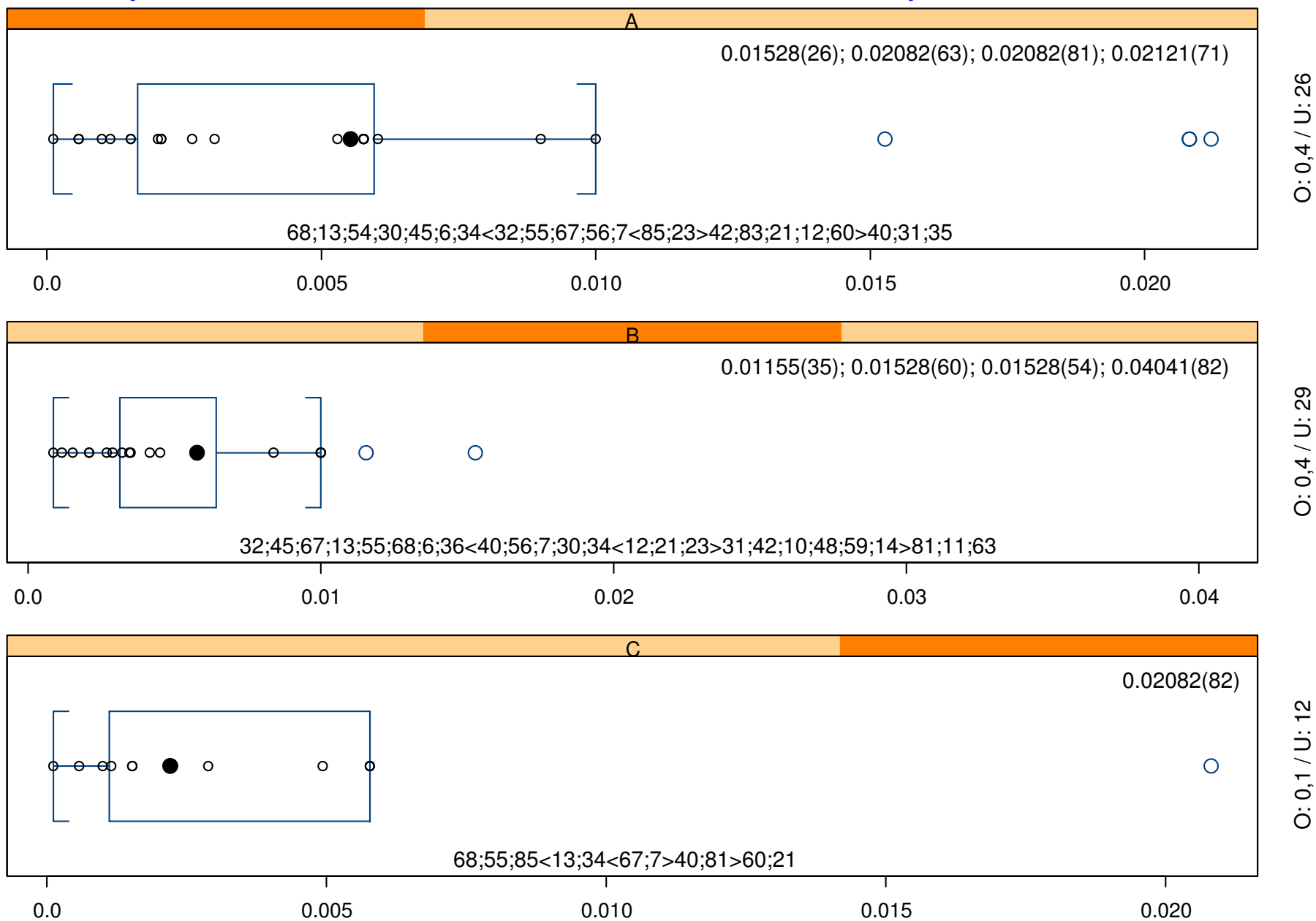
N: 28 NA: 0 Z: 0 E: 0.2 U: 26
 N: 32 NA: 0 Z: 0 E: 0.4 U: 28
 N: 13 NA: 0 Z: 0 E: 0.1 U: 12
 : 0.01209 m: 0.002887 s: 0.02854
 : 0.03664 m: 0.005774 s: 0.1529

Histogram of the standard deviations of samples D and E



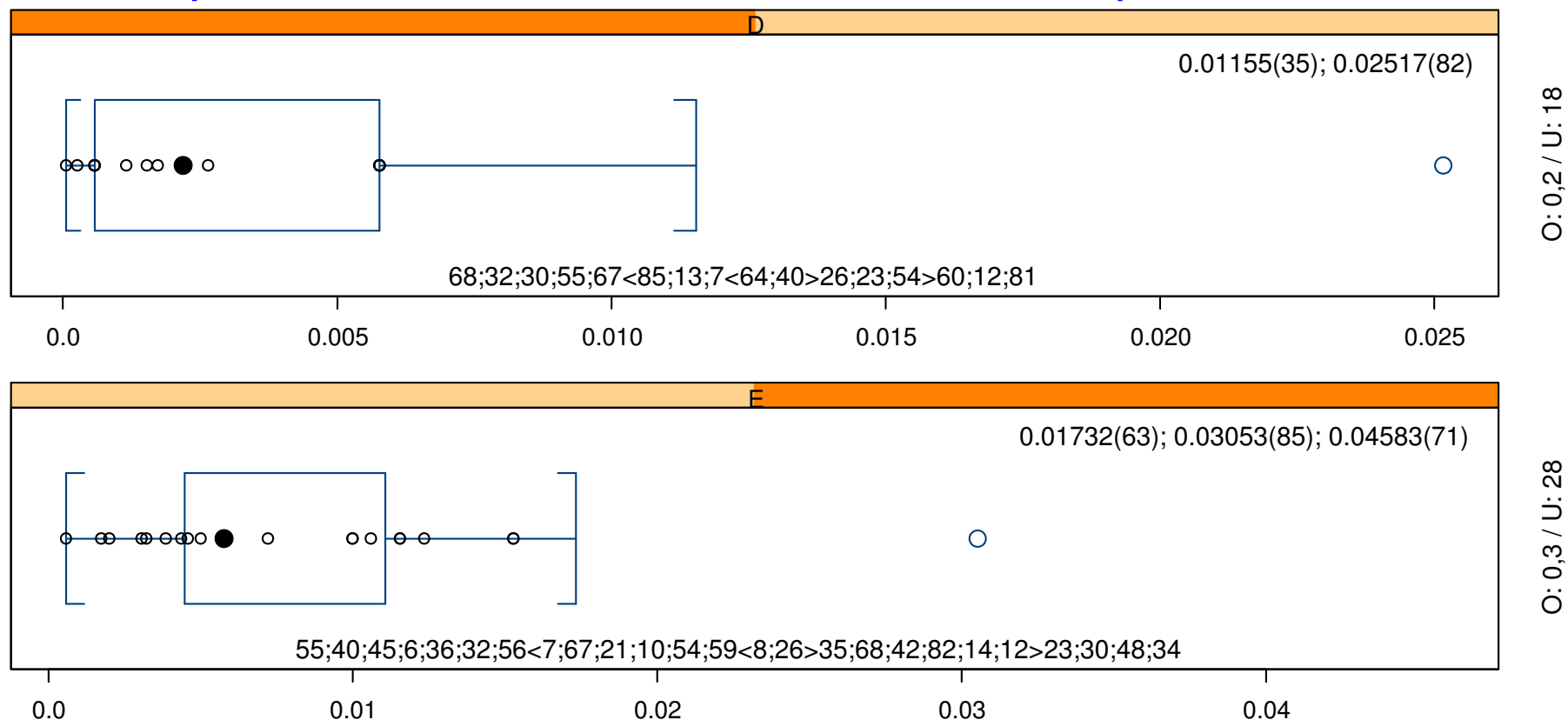
N: 19 NA: 0 Z: 0 E: 0.1 U: 18
a: 0.0314 m: 0.005774 s: 0.1183
N: 29 NA: 0 Z: 0 E: 0.2 U: 27
a: 0.04583(71); 0.6444(77)

Box plot of the standard deviations of samples A, B and C



6 - Exchangeable Fe - stdev

Box plot of the standard deviations of samples D and E

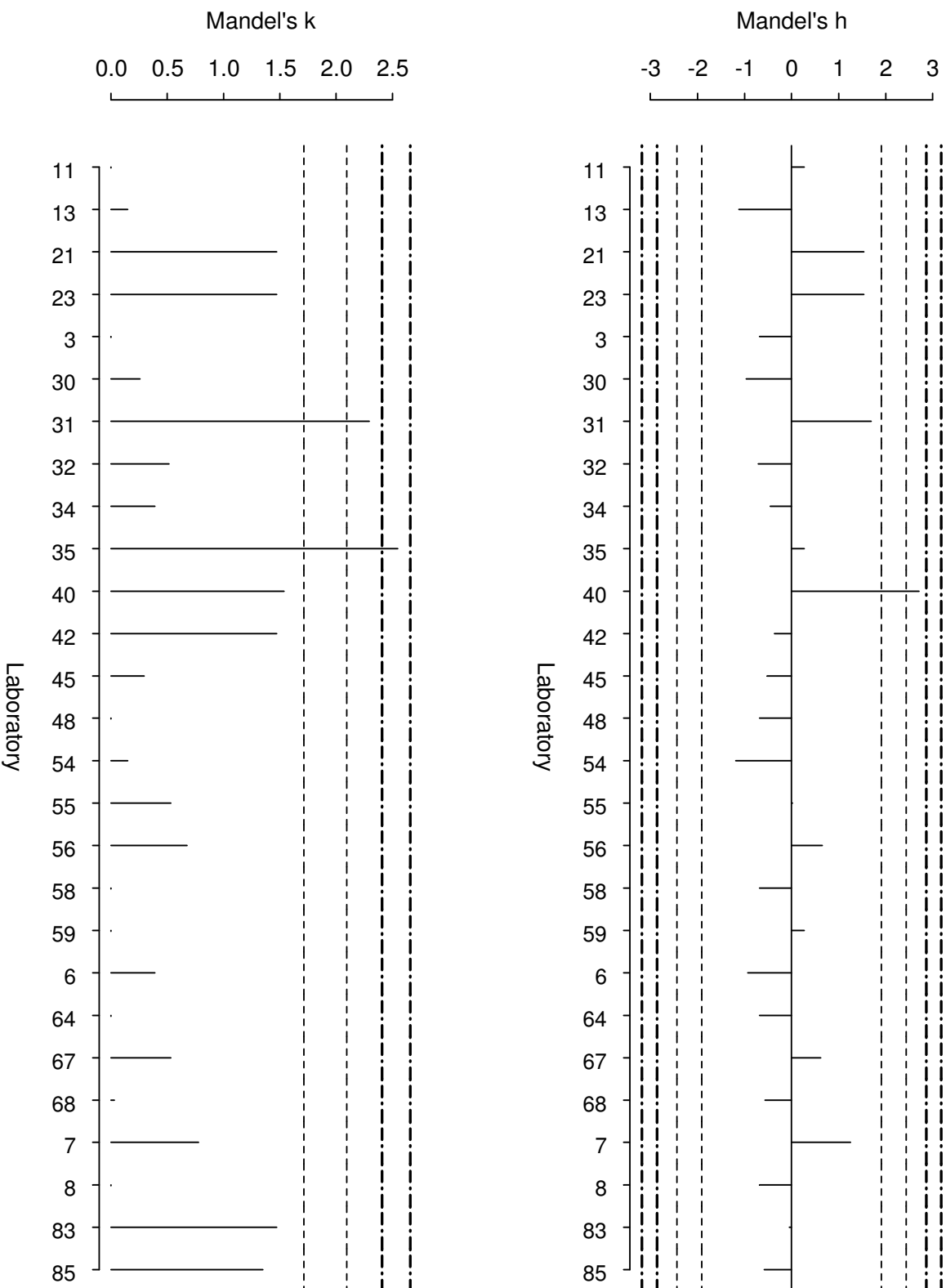


6 - Exchangeable Fe - stdev

Mandel's h and k plots of sample A

6 - Exchangeable Fe - Sample A

Step:6; Nlab:27; Mgen:0.01714; Fval:21.68; Pval:0; sRep:0.003923; sLab:0.0103; sRpr:0.01102; CV:64.29



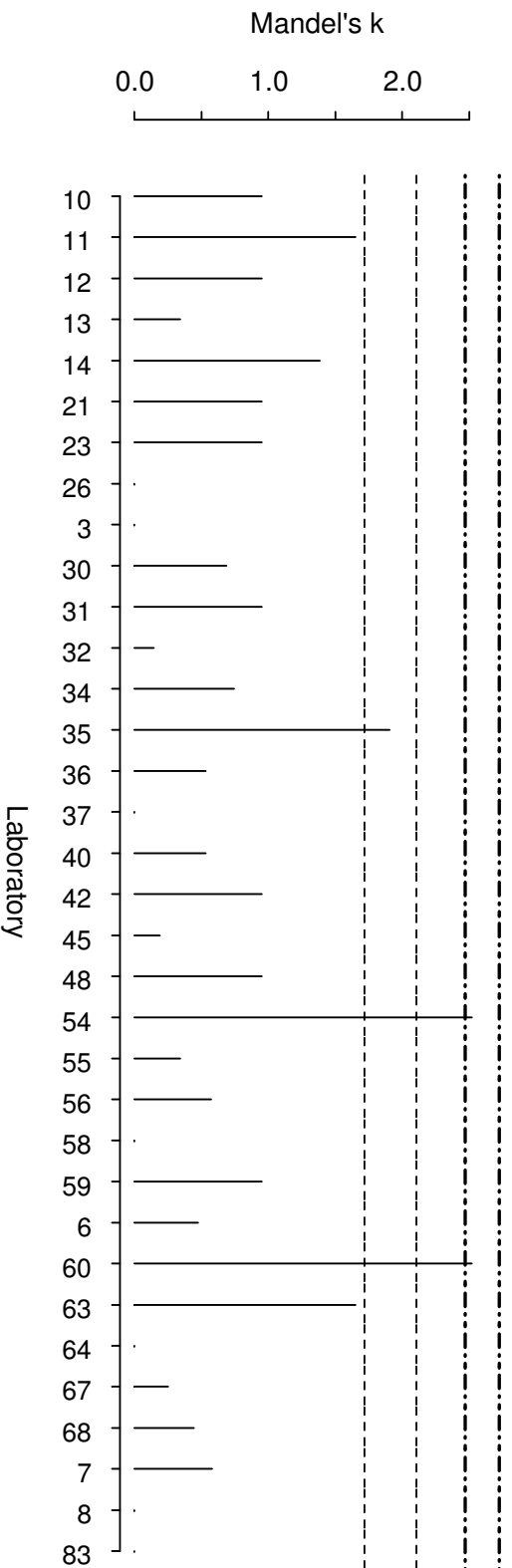
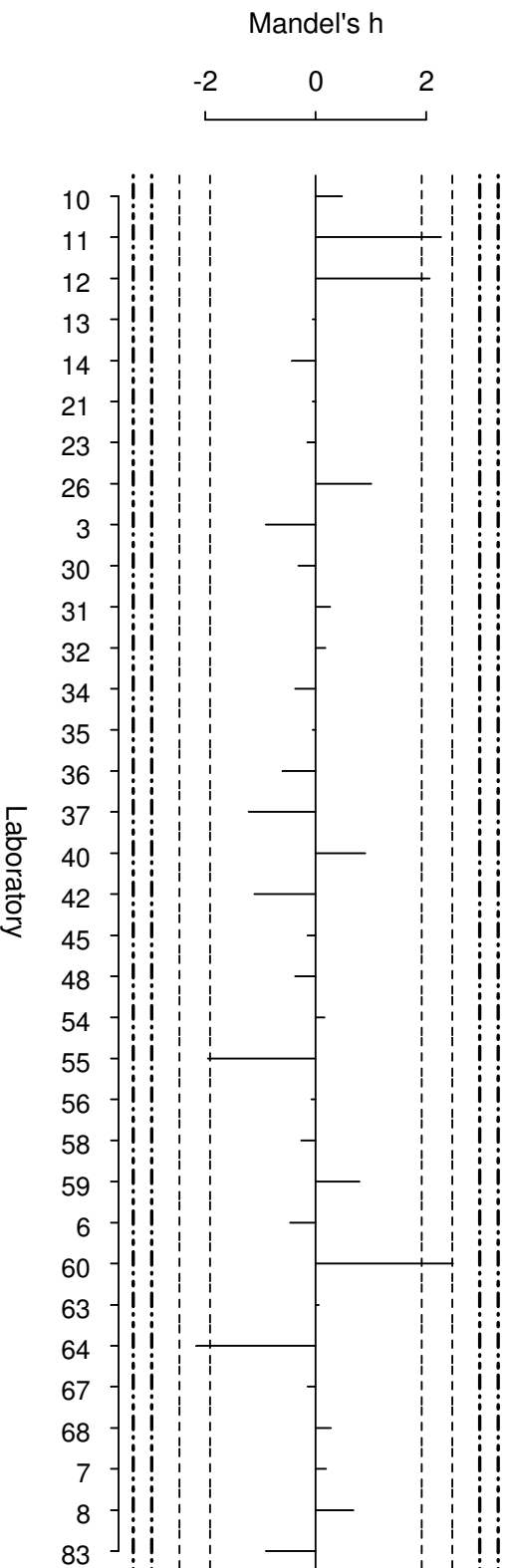
S: 35

E: hk77;hk81;hk82;h12;k63;hk26;h60

Mandel's h and k plots of sample B

6 - Exchangeable Fe - Sample B

Step:3; Nlab:34; Mgen:0.1084; Fval:81.51; Pval:0; sRep:0.006059; sLab:0.03139; sRpr:0.03197; CV:29.5



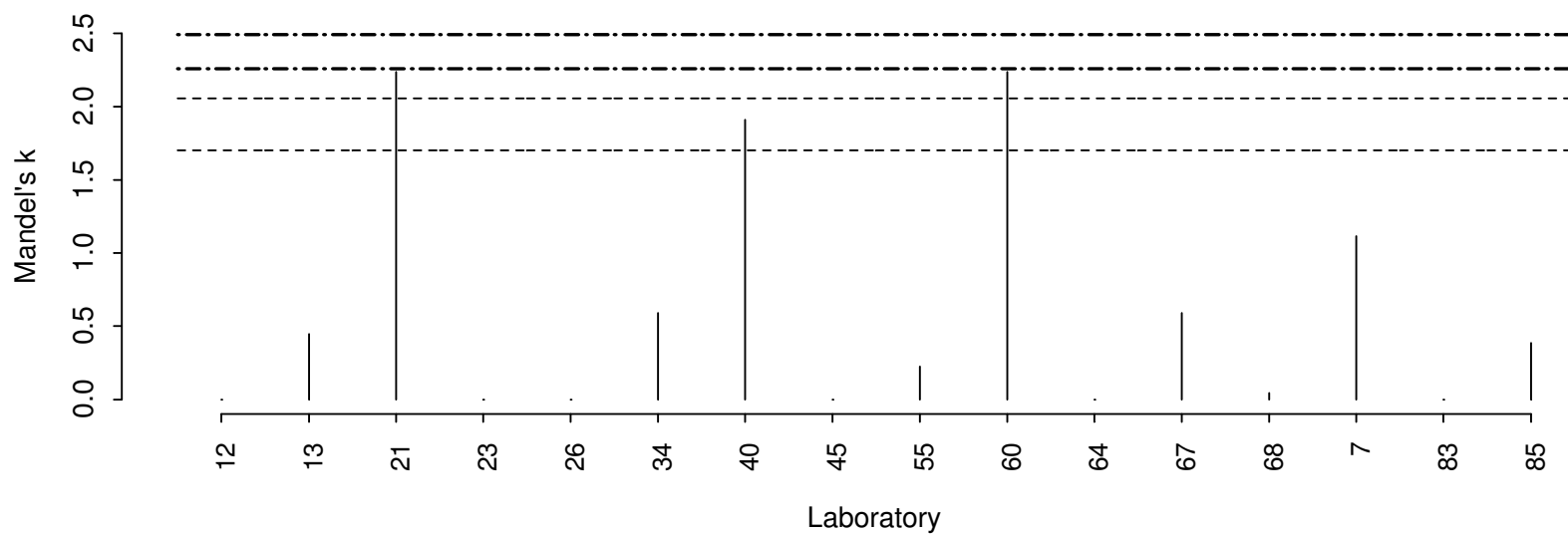
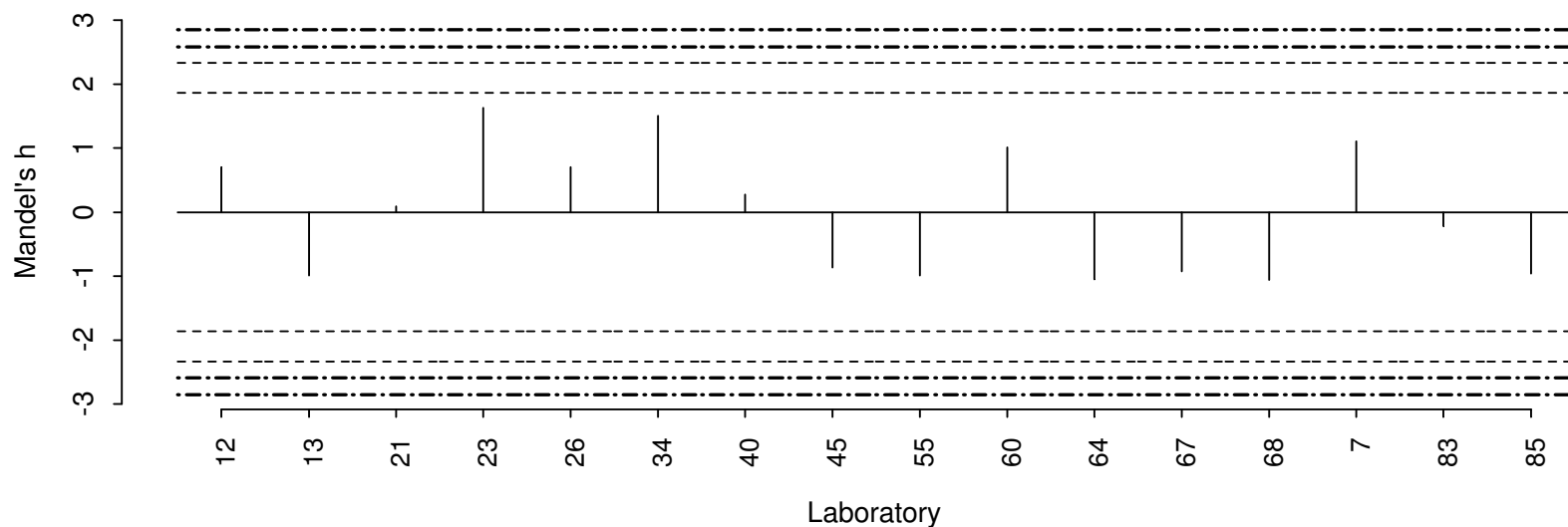
S: 54,60

E: hk77;k71;h81;hk82;k85

Mandel's h and k plots of sample C

6 - Exchangeable Fe - Sample C

Step:3; Nlab:16; Mgen:0.01235; Fval:52.7; Pval:0; sRep:0.002582; sLab:0.01072; sRpr:0.01103; CV:89.27

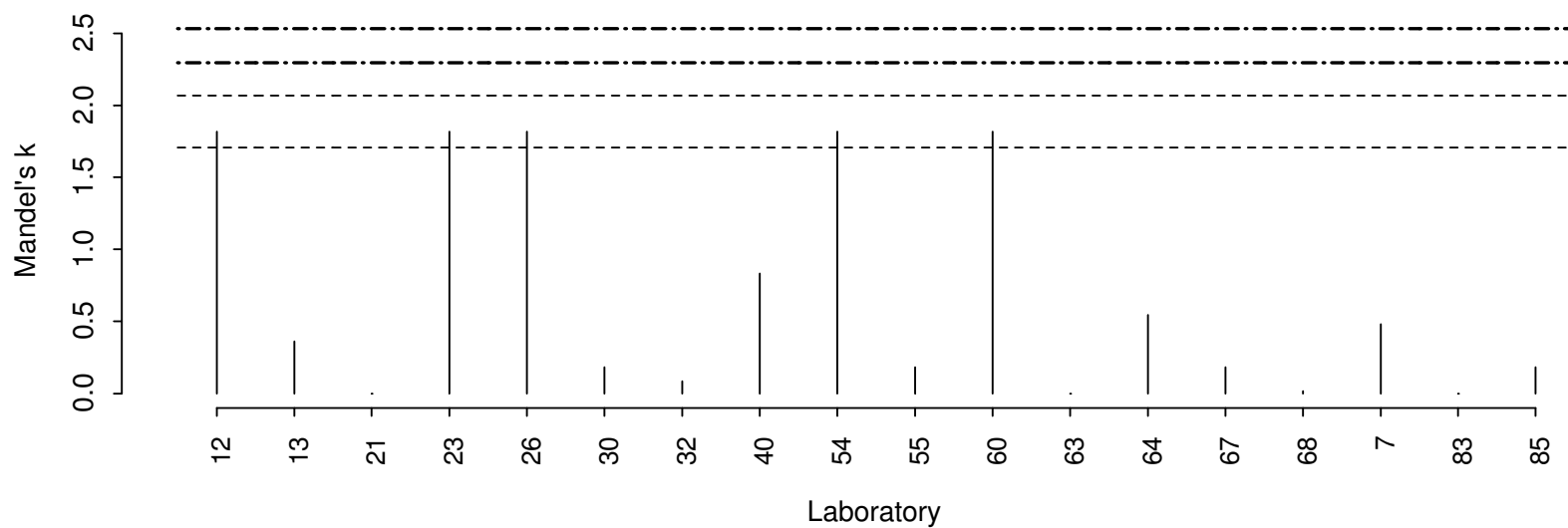
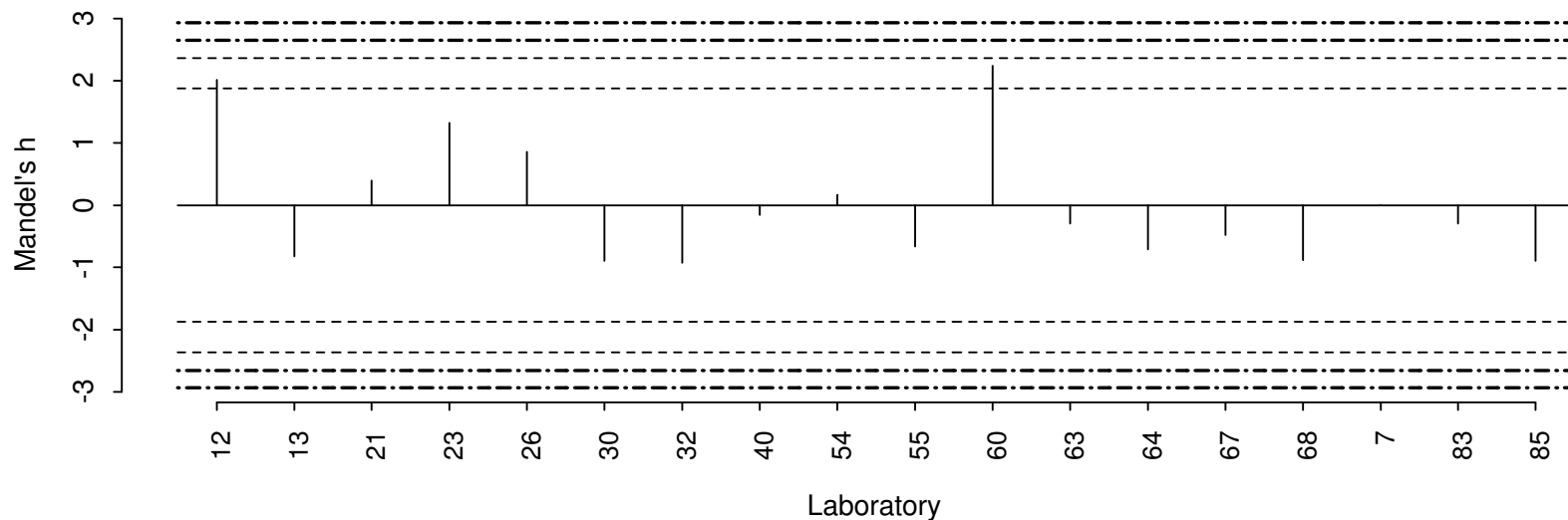


E: hk77;h81,hk82

Mandel's h and k plots of sample D

6 - Exchangeable Fe - Sample D

Step:4; Nlab:18; Mgen:0.01425; Fval:62.13; Pval:0; sRep:0.003178; sLab:0.01434; sRpr:0.01469; CV:103.1

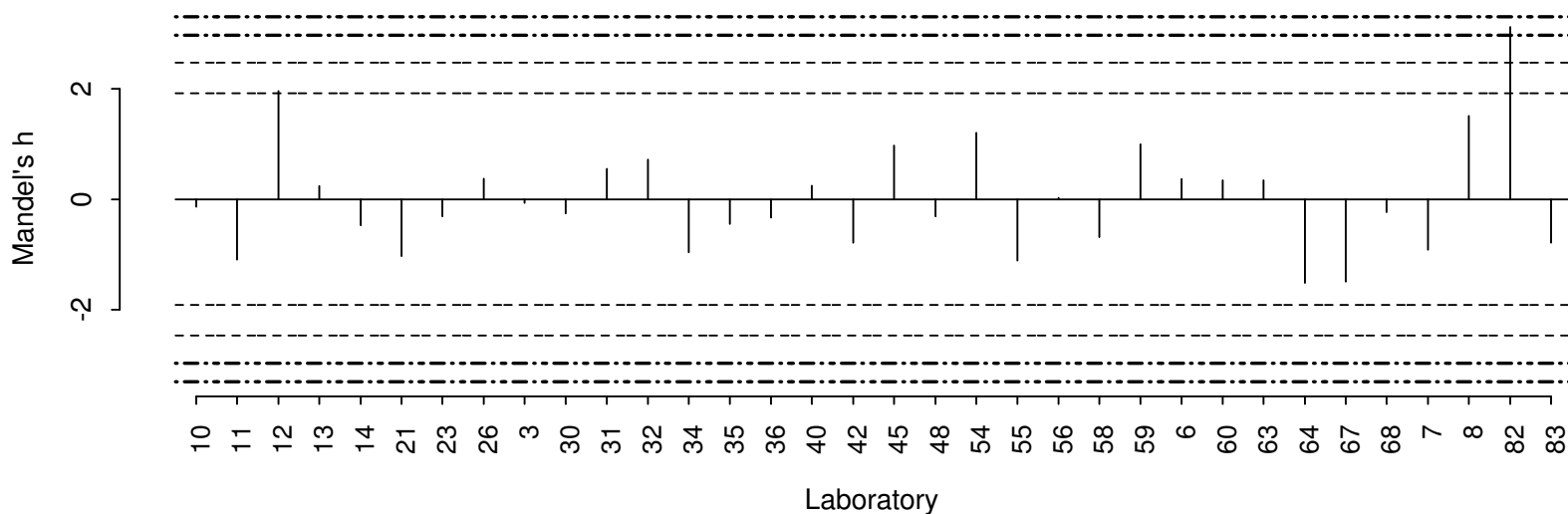


E: hk77;h81;hk82;k35

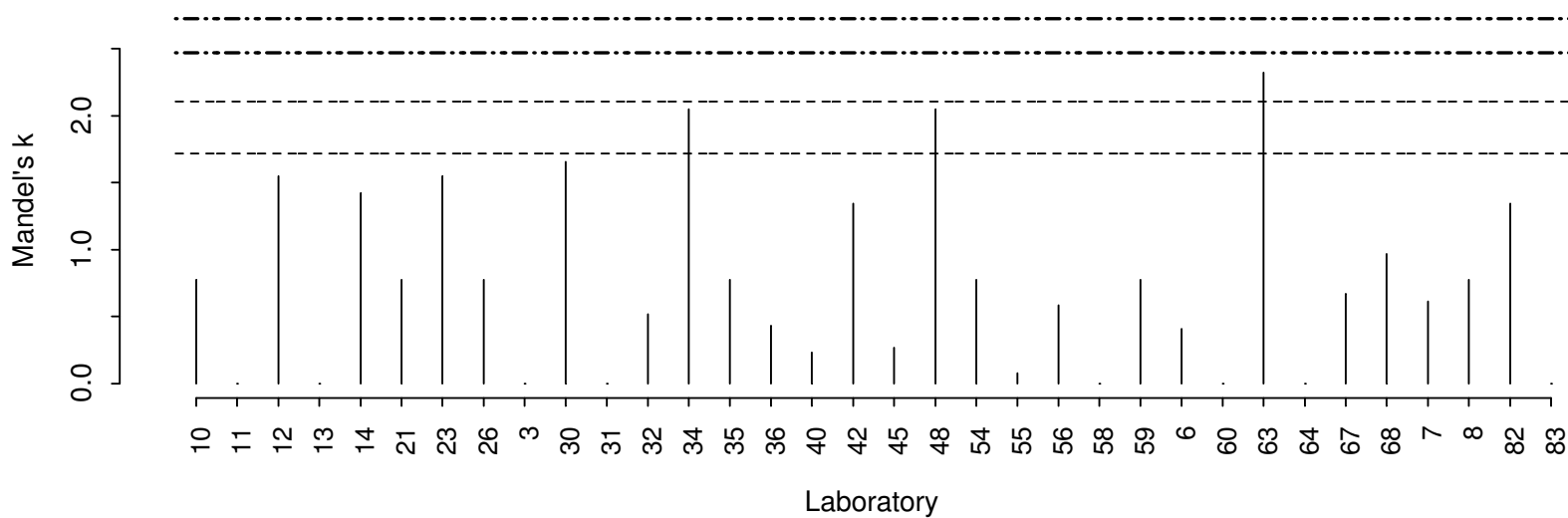
Mandel's h and k plots of sample E

6 - Exchangeable Fe - Sample E

Step:4; Nlab:34; Mgen:0.2068; Fval:509.3; Pval:0; sRep:0.007456; sLab:0.09706; sRpr:0.09734; CV:47.08



S: 82

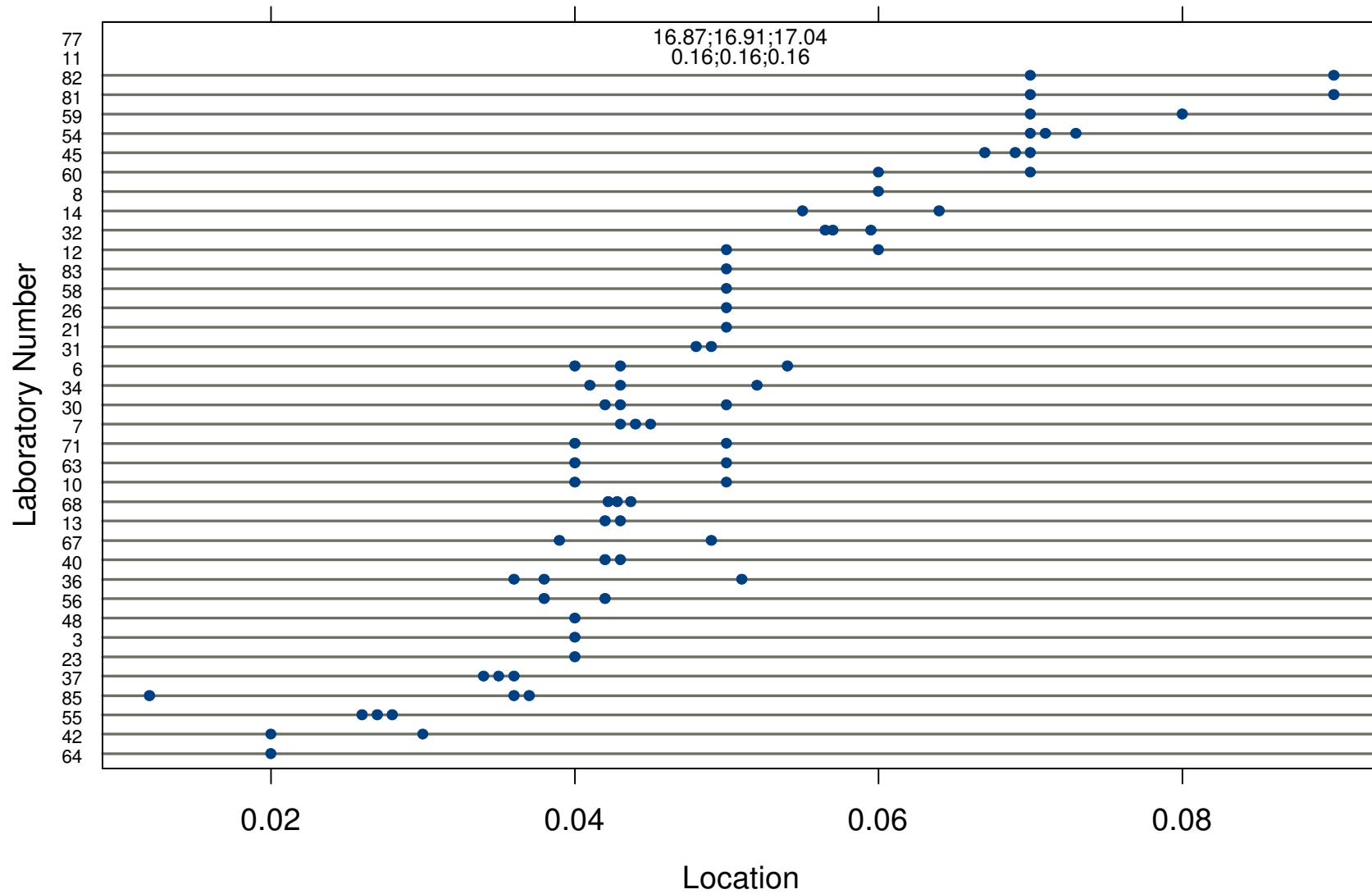


E: hk77;k71;k85

Exchangeable Mn

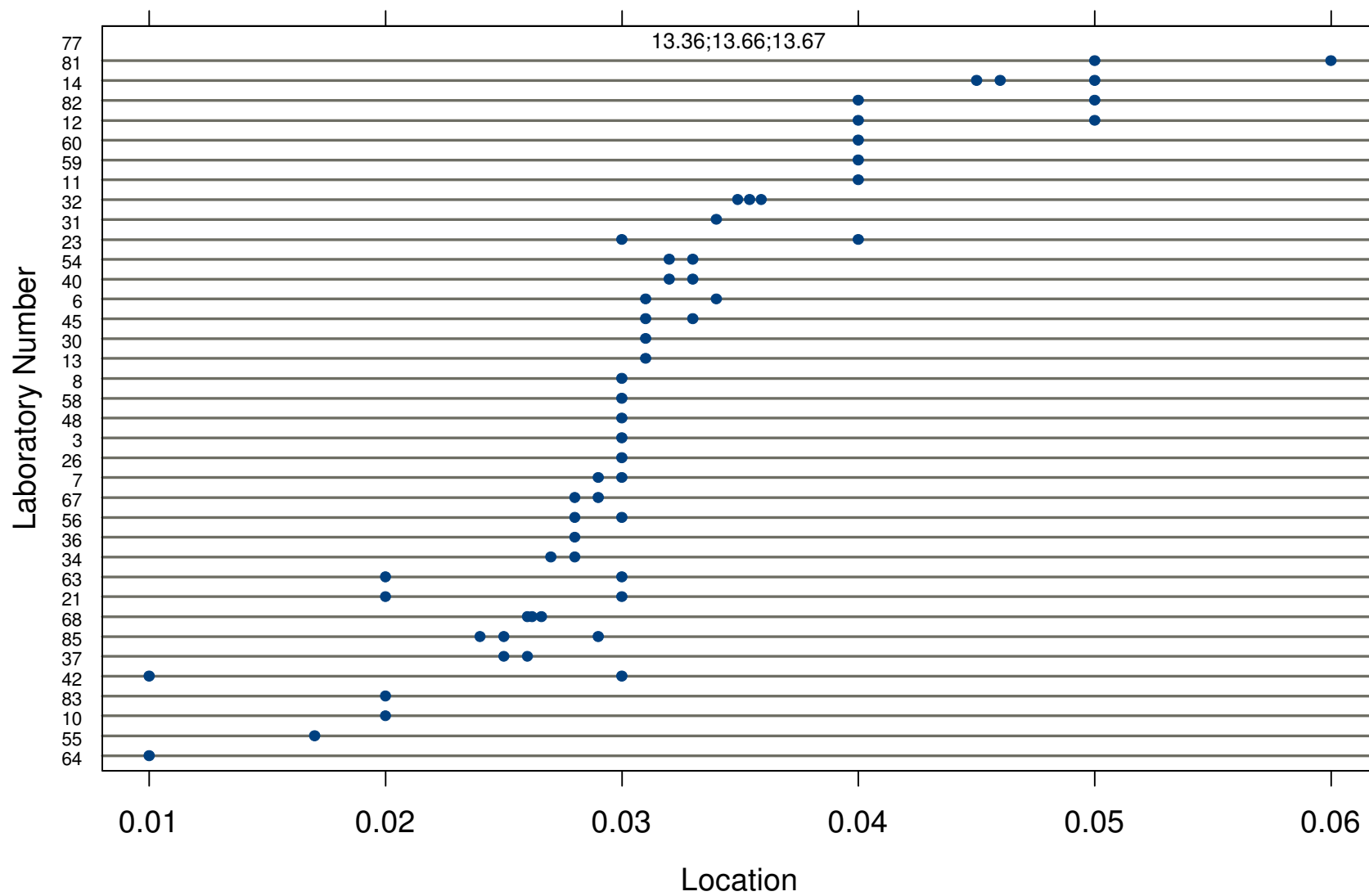
Dot plot sample A

6 - Exchangeable Mn - Sample A



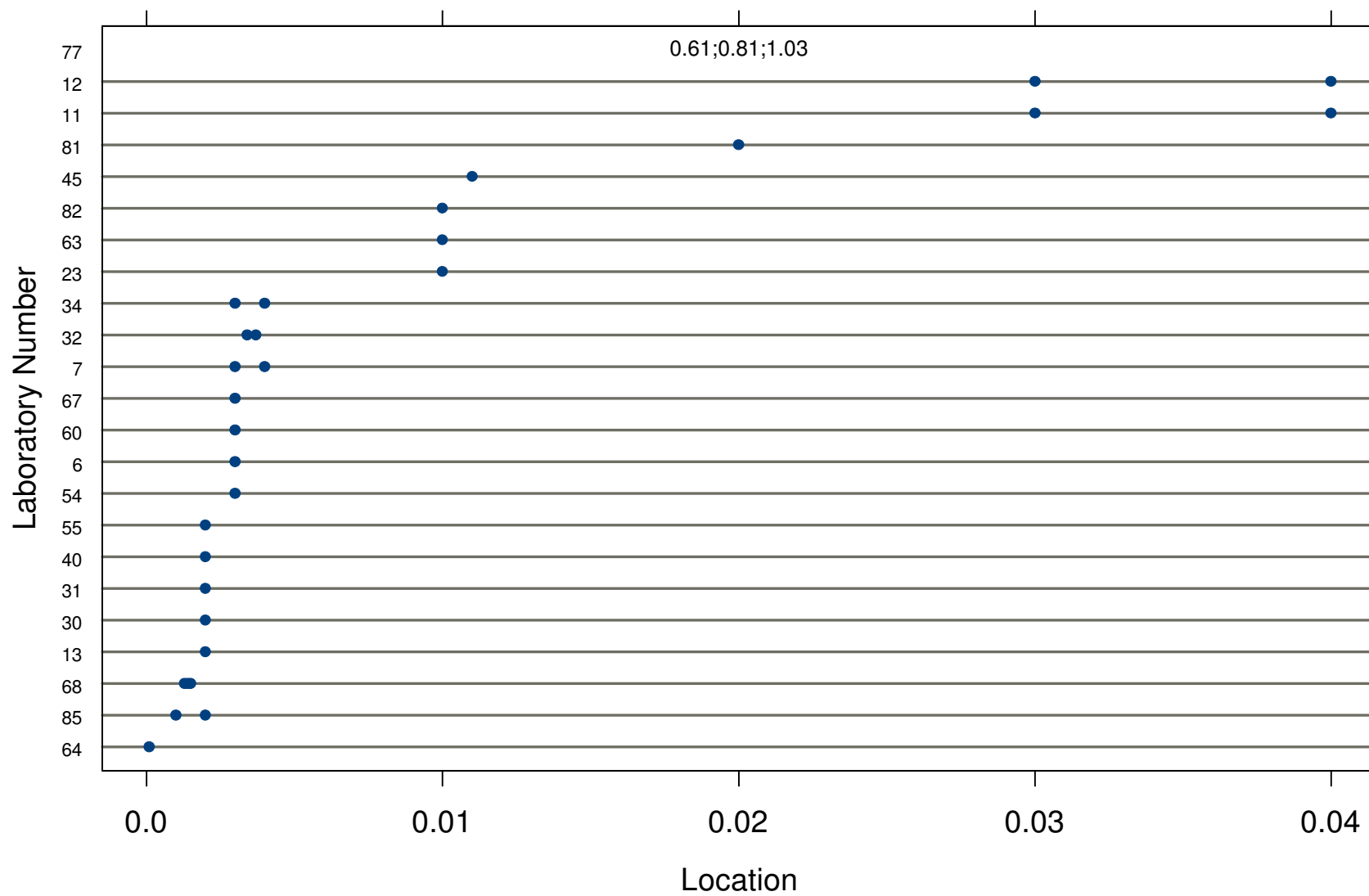
Dot plot sample B

6 - Exchangeable Mn - Sample B



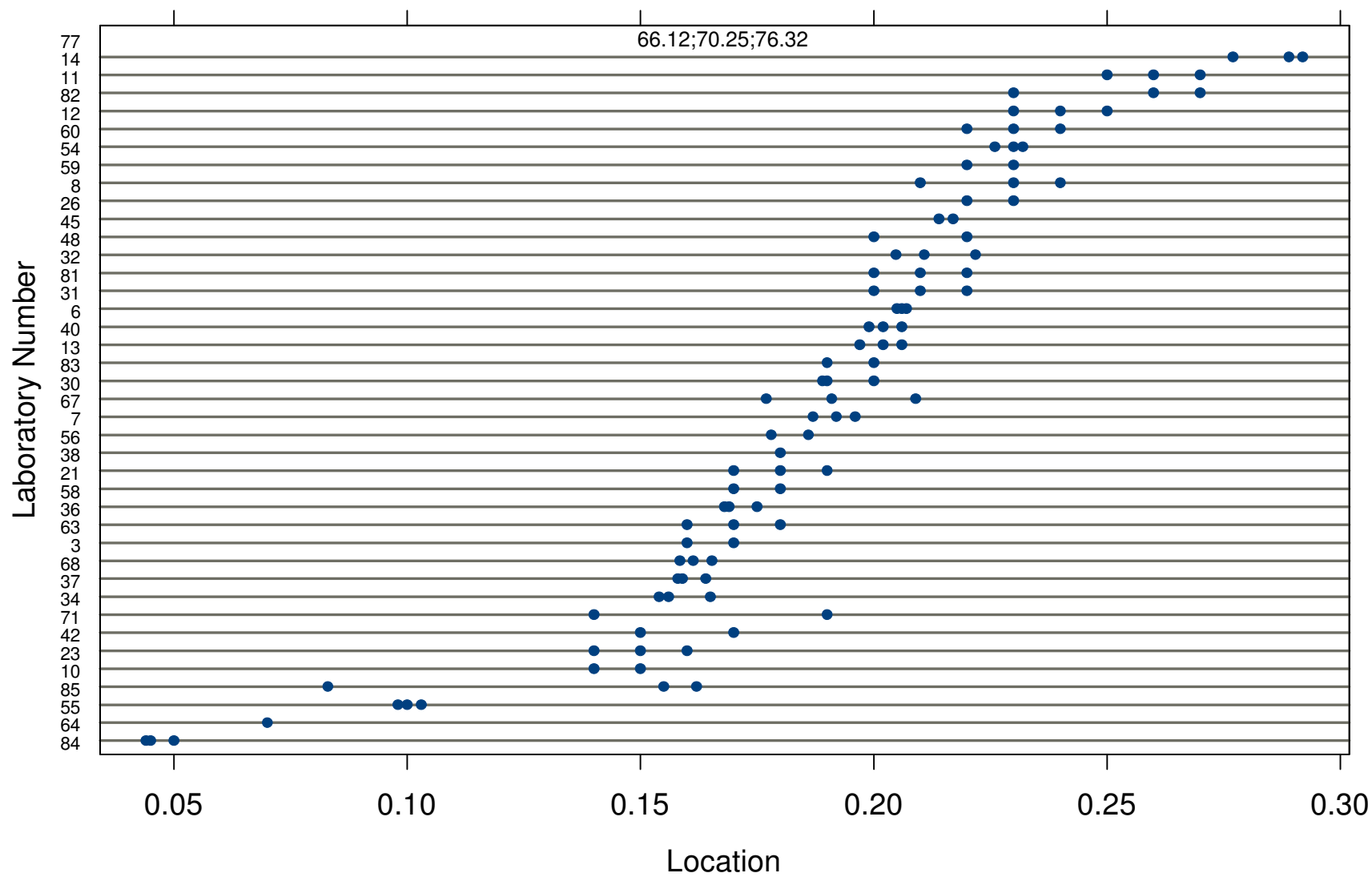
Dot plot sample C

6 - Exchangeable Mn - Sample C



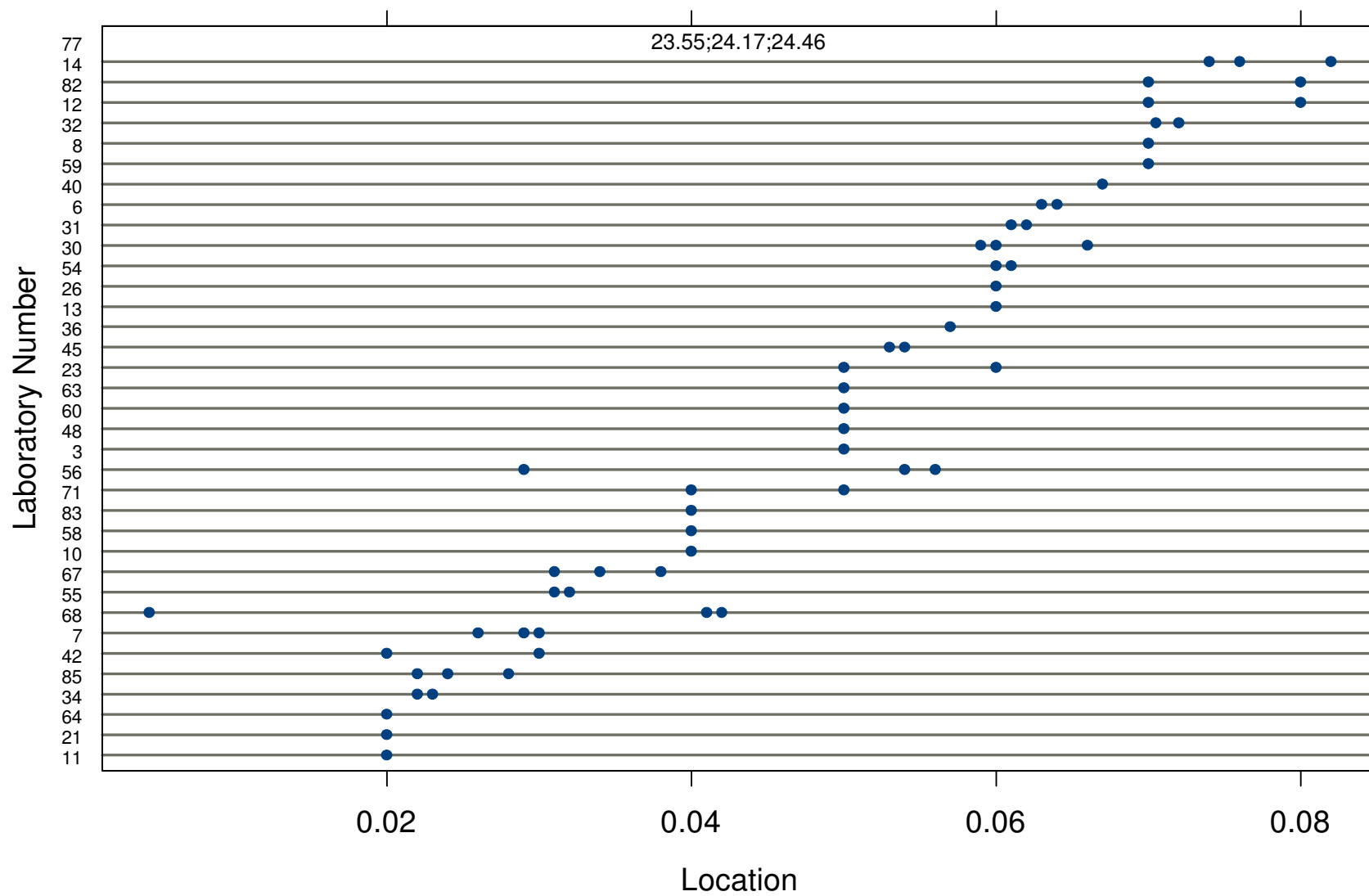
Dot plot sample D

6 - Exchangeable Mn - Sample D

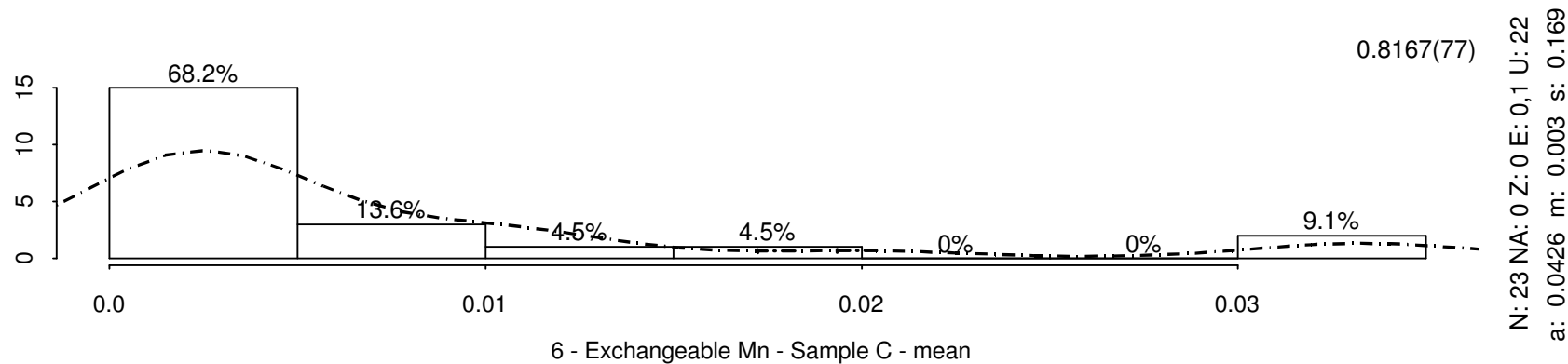
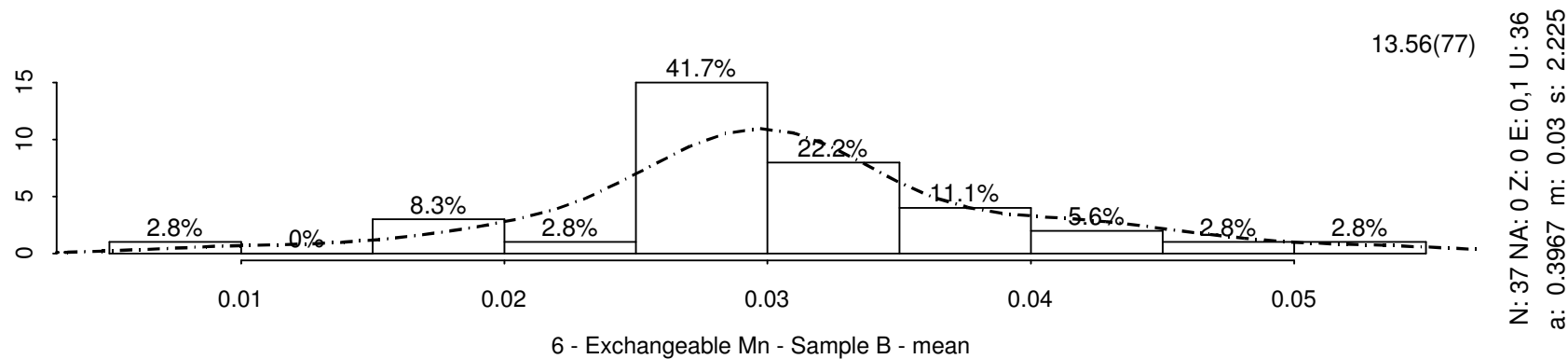
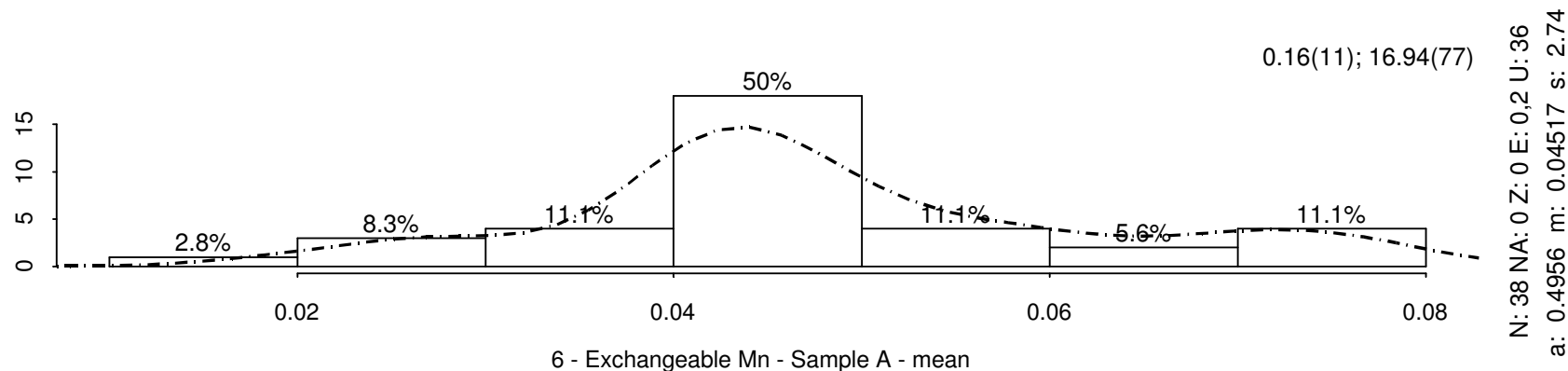


Dot plot sample E

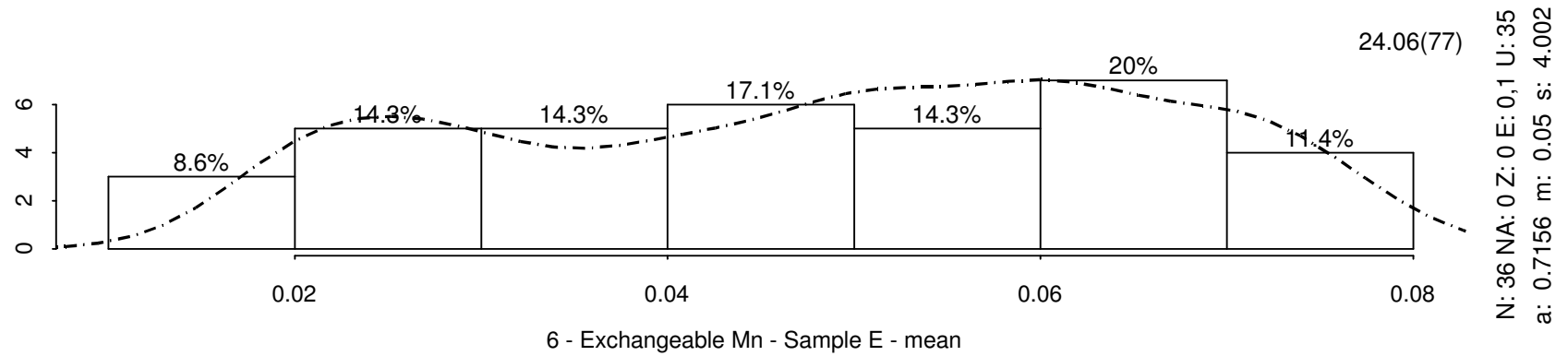
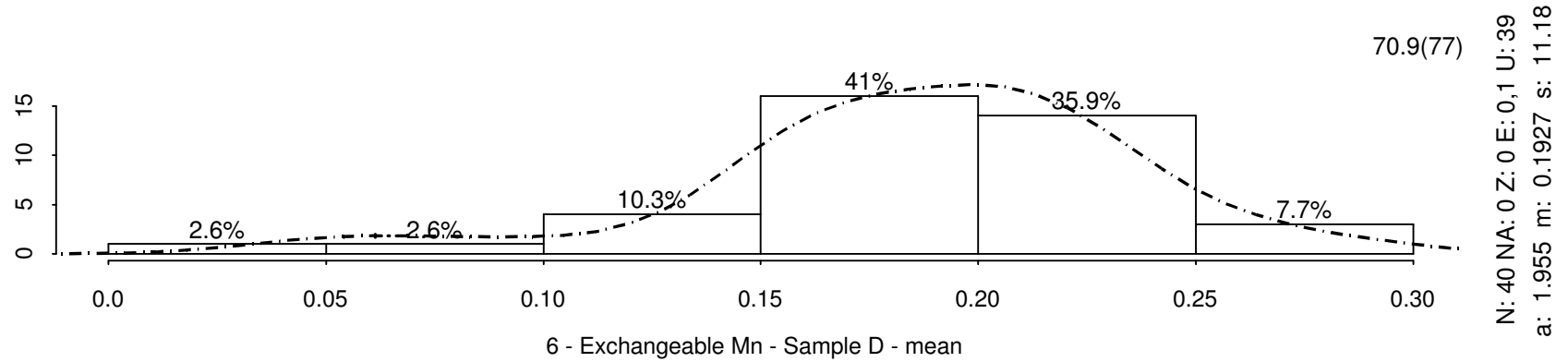
6 - Exchangeable Mn - Sample E



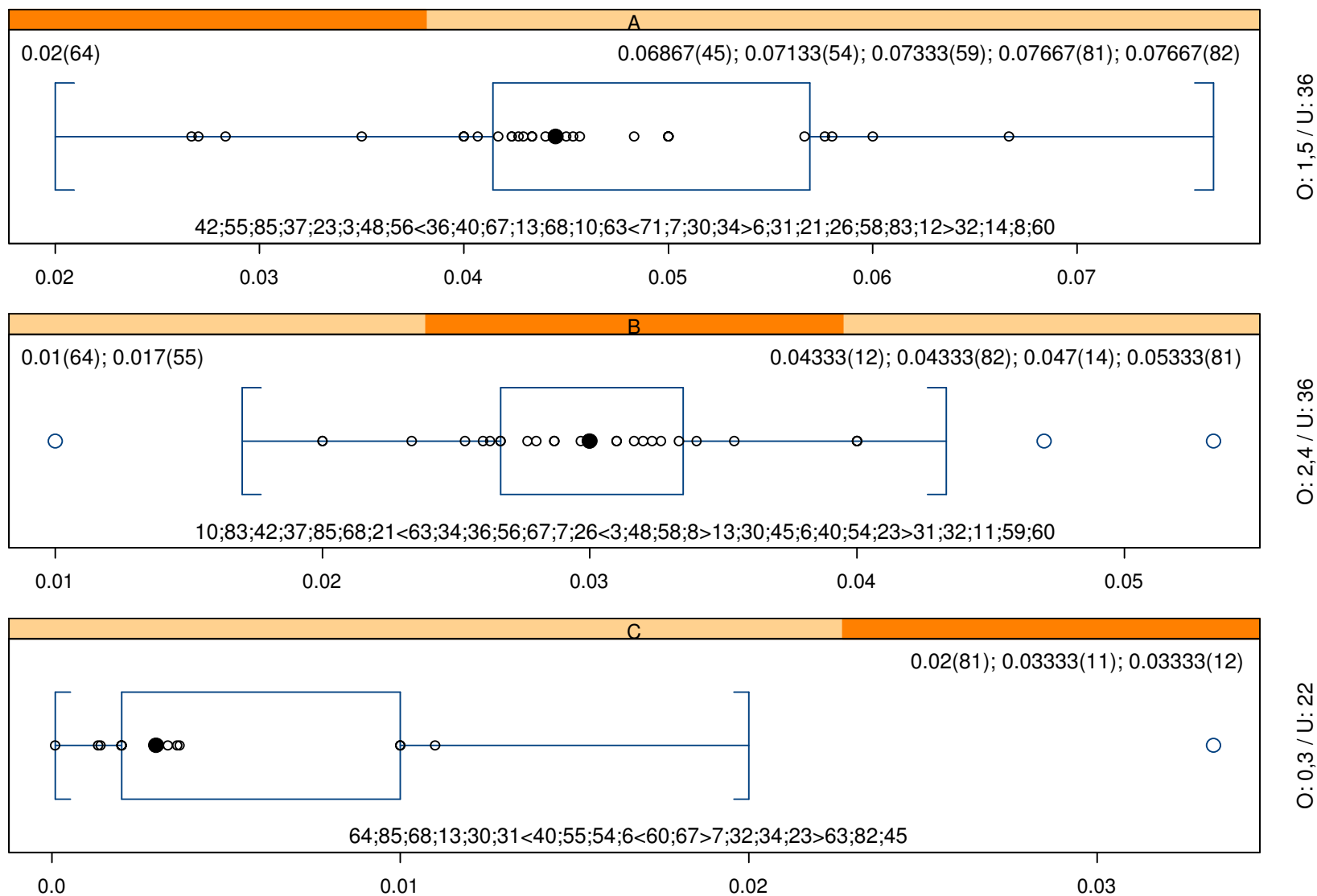
Histogram of the means of samples A, B and C



Histogram of the means of samples D and E

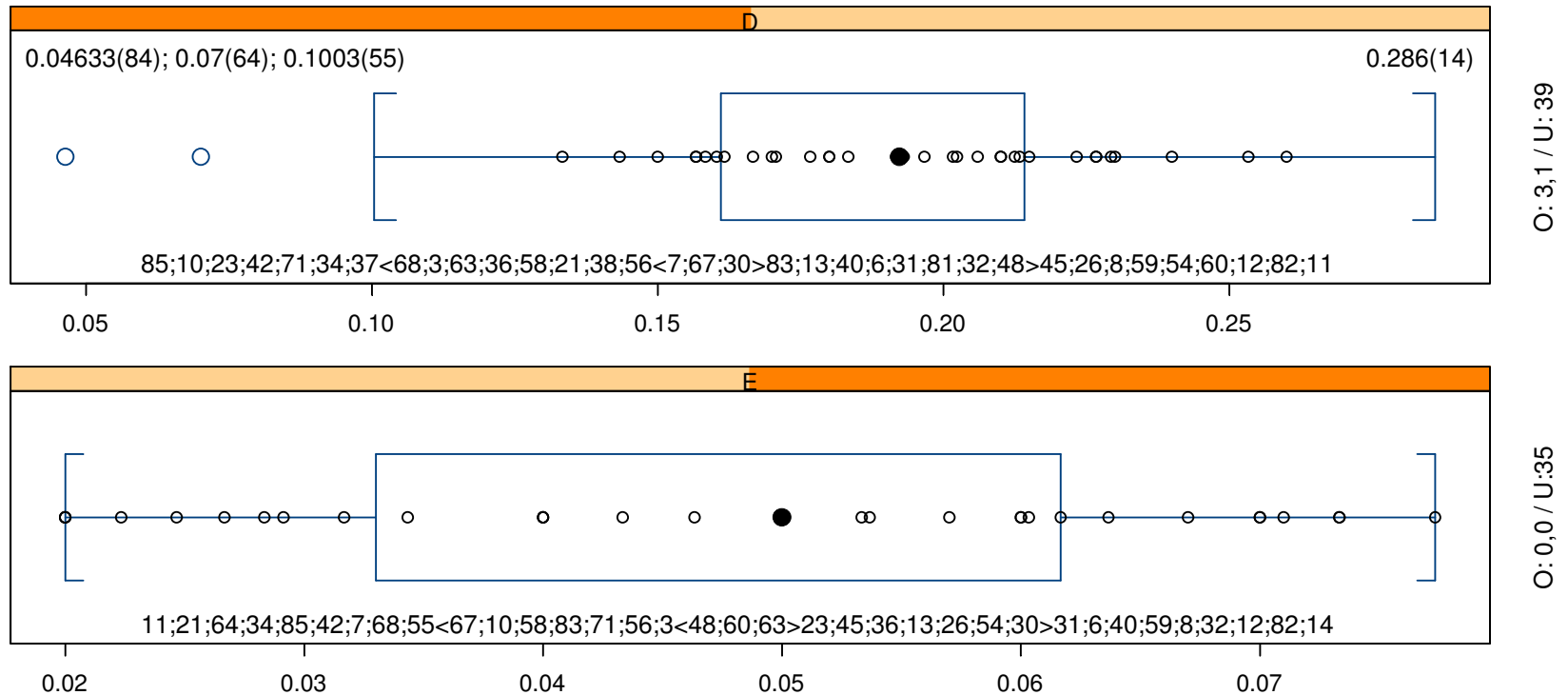


Box plot of the means of samples A, B and C



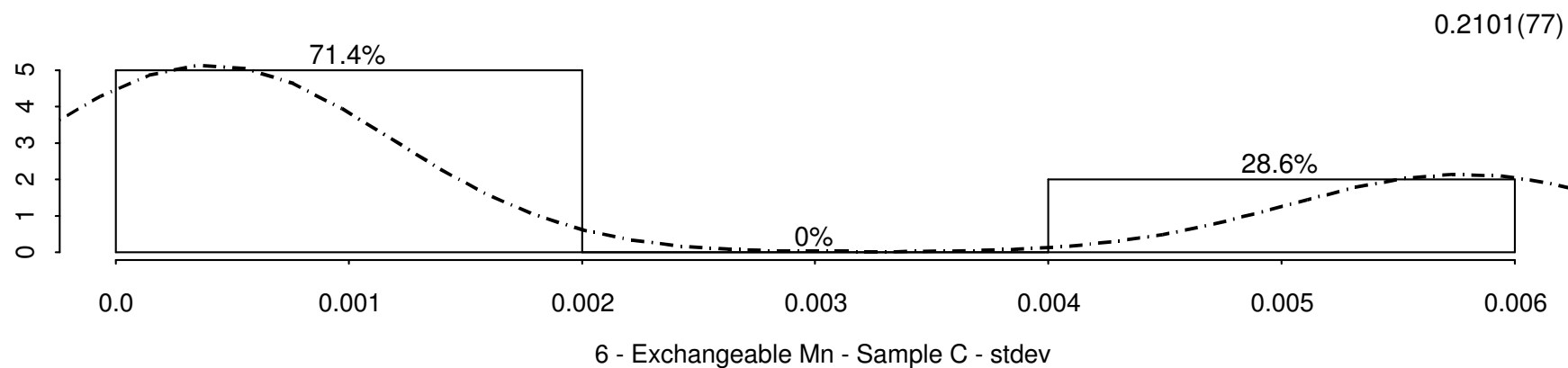
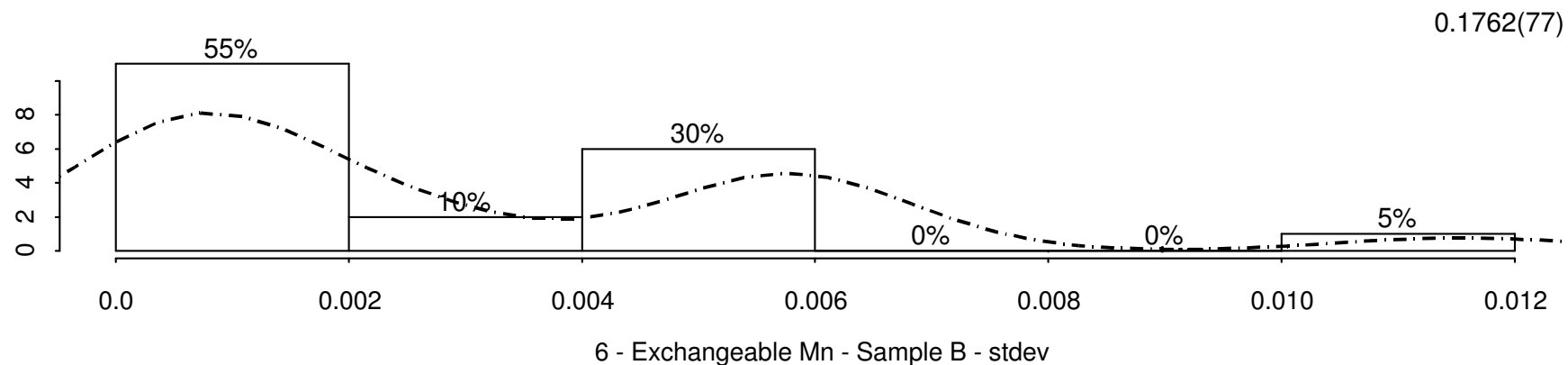
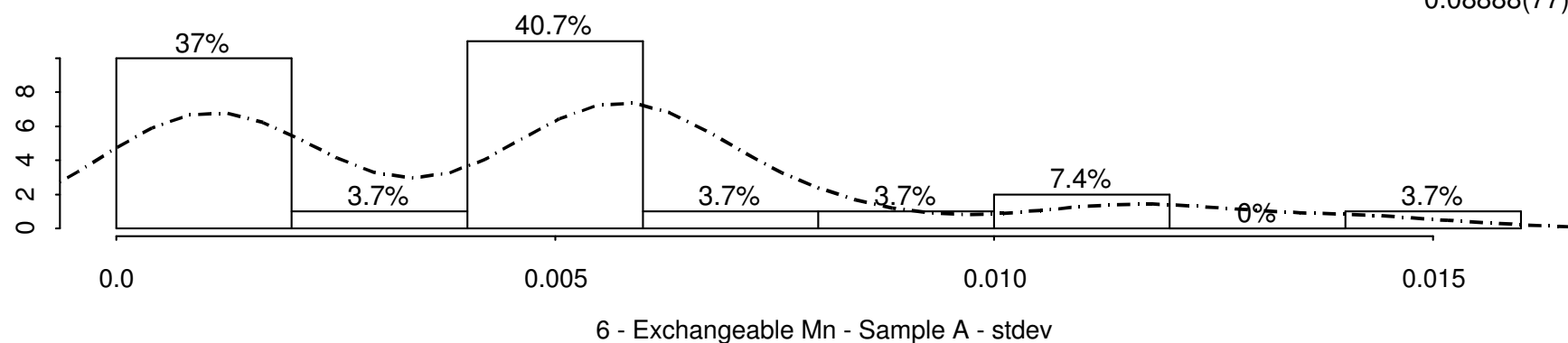
6 - Exchangeable Mn - mean

Box plot of the means of samples D and E



6 - Exchangeable Mn - mean

Histogram of the standard deviations of samples A, B and C



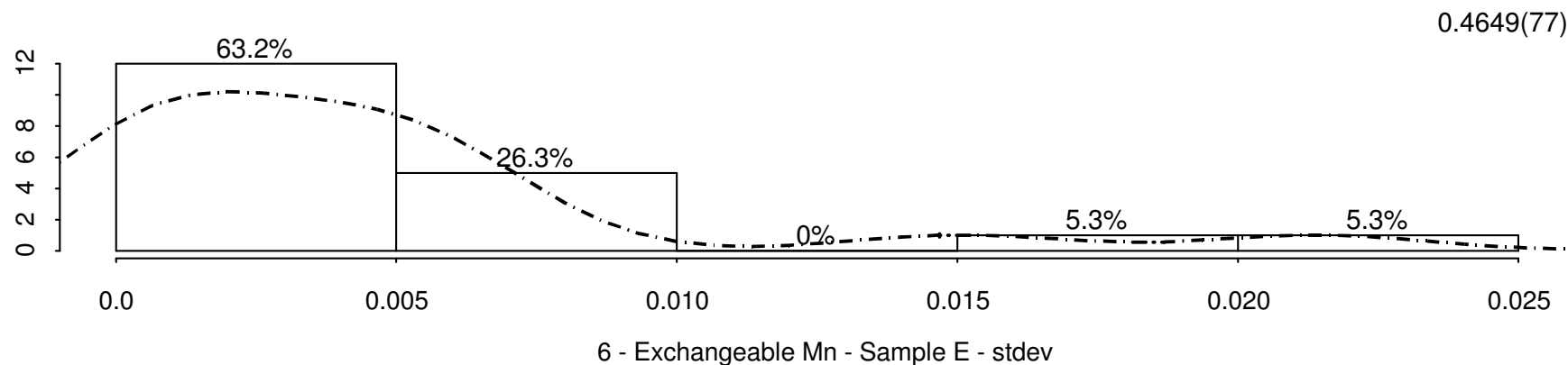
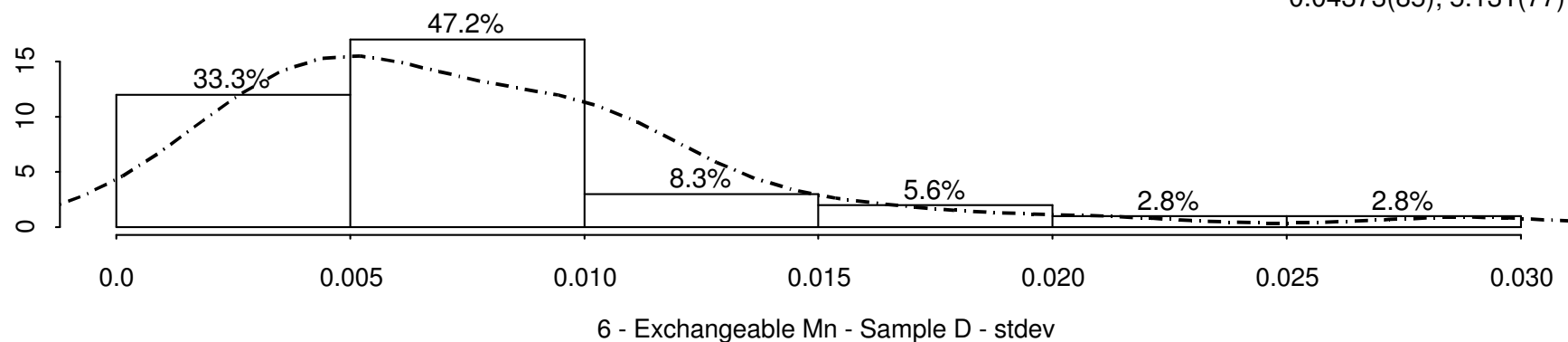
N: 28 NA: 0 Z: 0 E: 0,1 U: 27
0.00888(77)

N: 21 NA: 0 Z: 0 E: 0,1 U: 20
0.1762(77)

N: 8 NA: 0 Z: 0 E: 0,1 U: 7
0.2101(77)

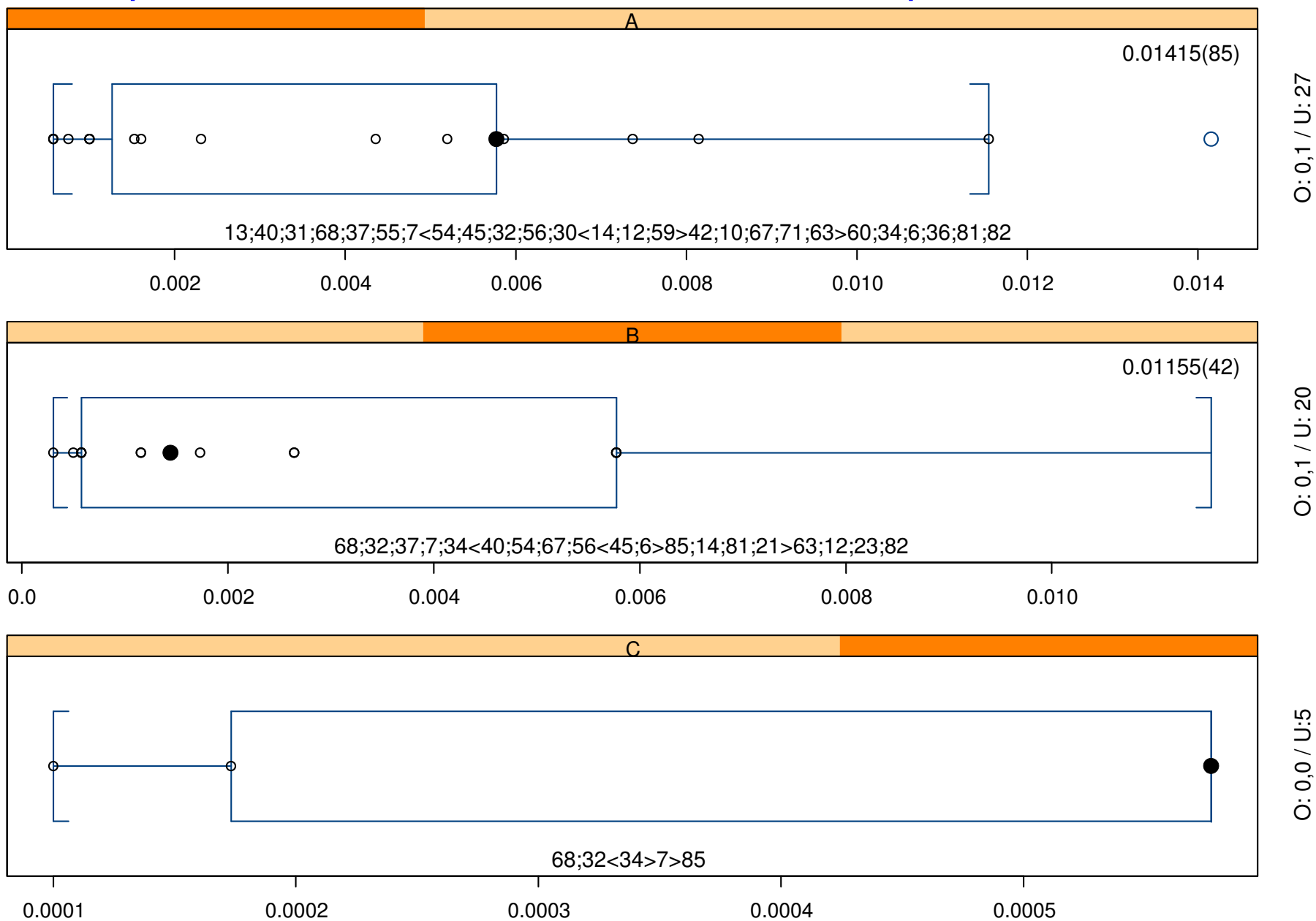
0.02795 m: 0.0005774 s: 0.07363
0.007704 m: 0.005774 s: 0.0163

Histogram of the standard deviations of samples D and E



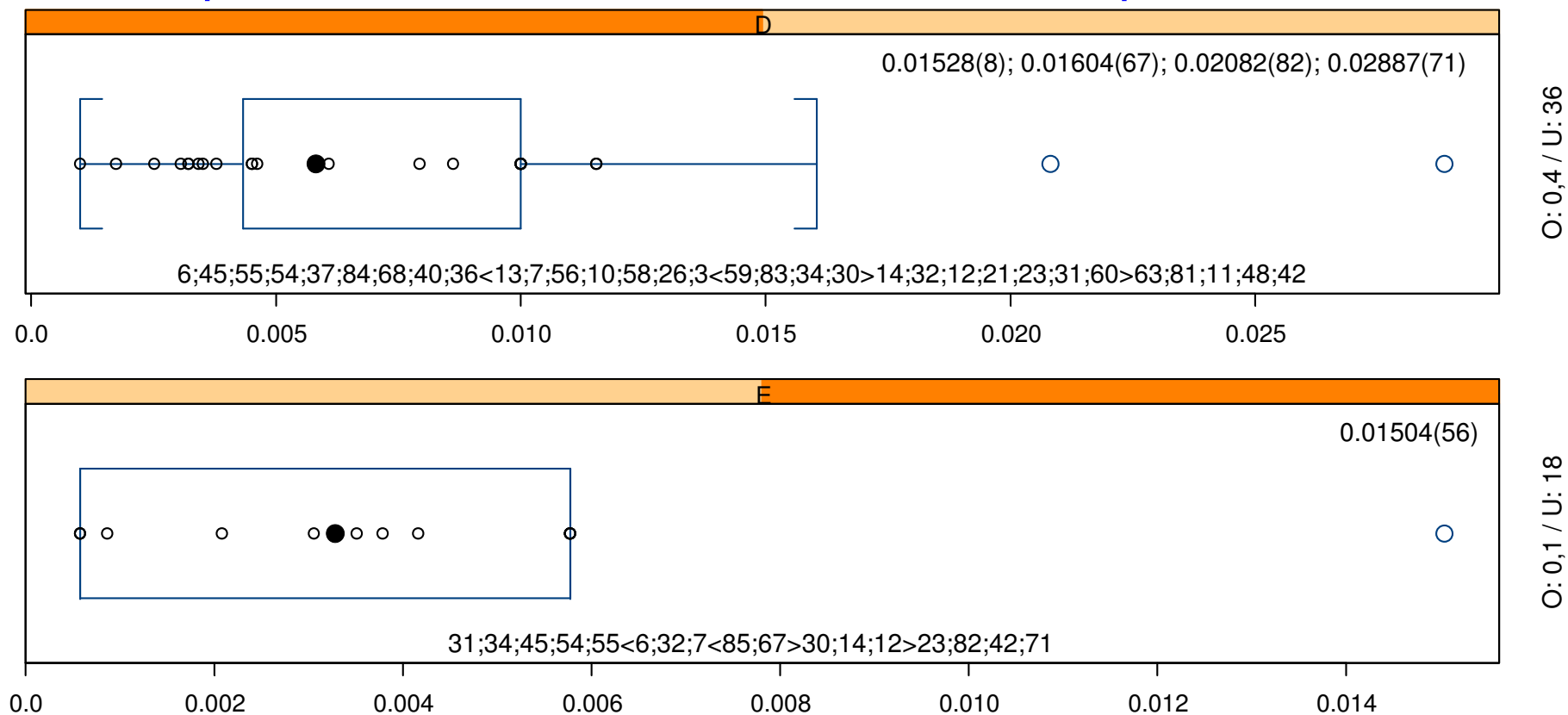
N: 38 NA: 0 Z: 0 E: 0.2 U: 36
a: 0.02756 m: 0.003649 s: 0.1031a: 0.1437 m: 0.005971 s: 0.8309

Box plot of the standard deviations of samples A, B and C



6 - Exchangeable Mn - stdev

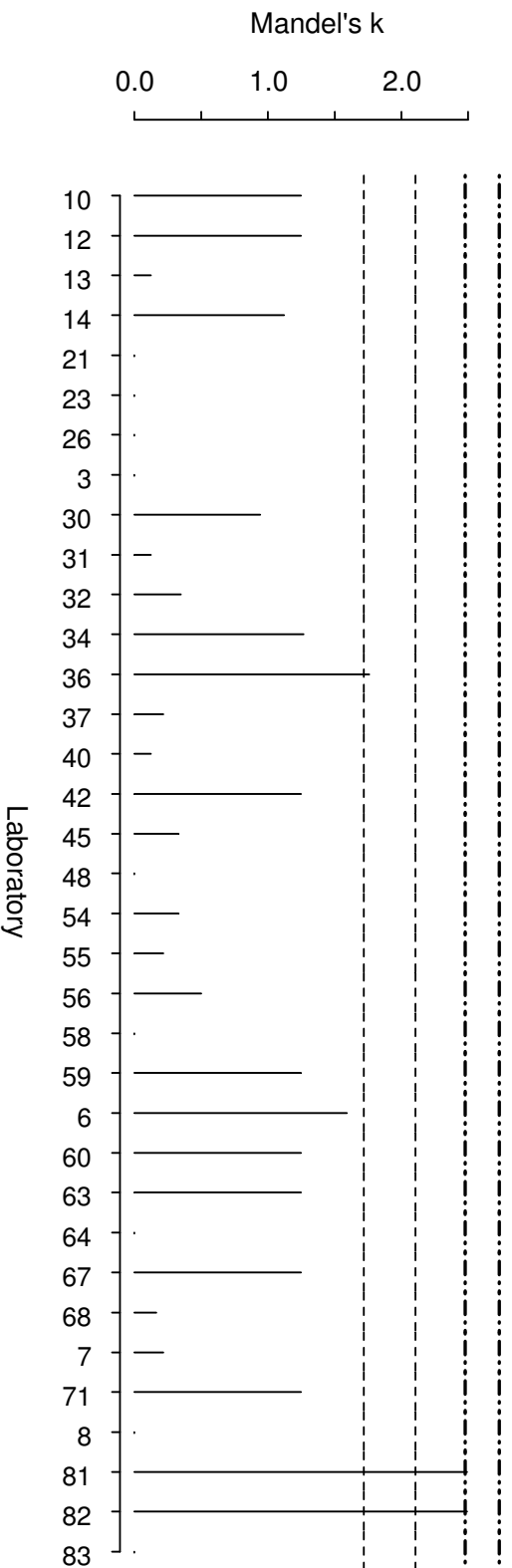
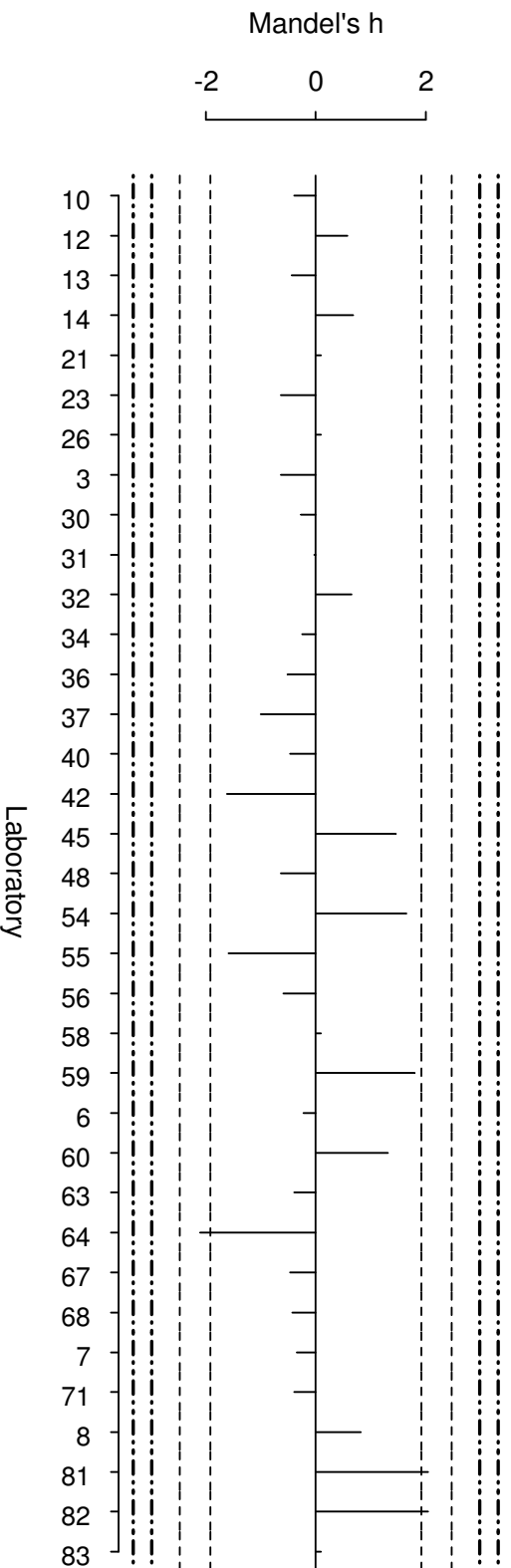
Box plot of the standard deviations of samples D and E



Mandel's h and k plots of sample A

6 - Exchangeable Mn - Sample A

Step:3; Nlab:35; Mgen:0.04872; Fval:26.19; Pval:0; sRep:0.004634; sLab:0.01343; sRpr:0.0142; CV:29.15



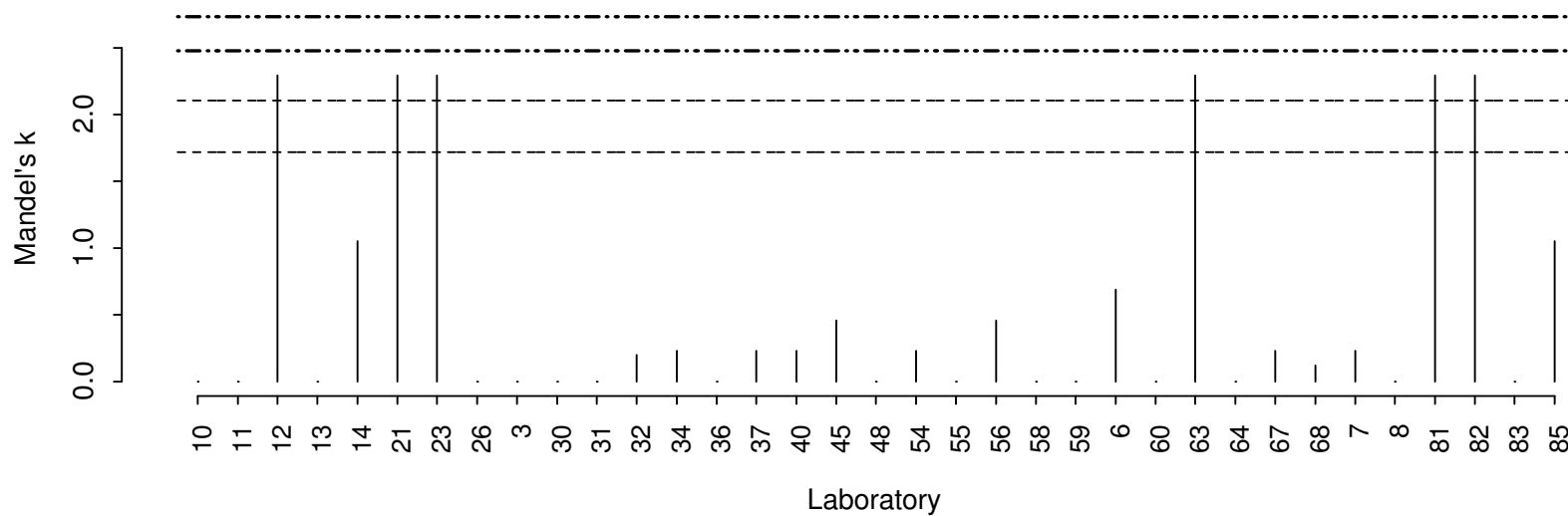
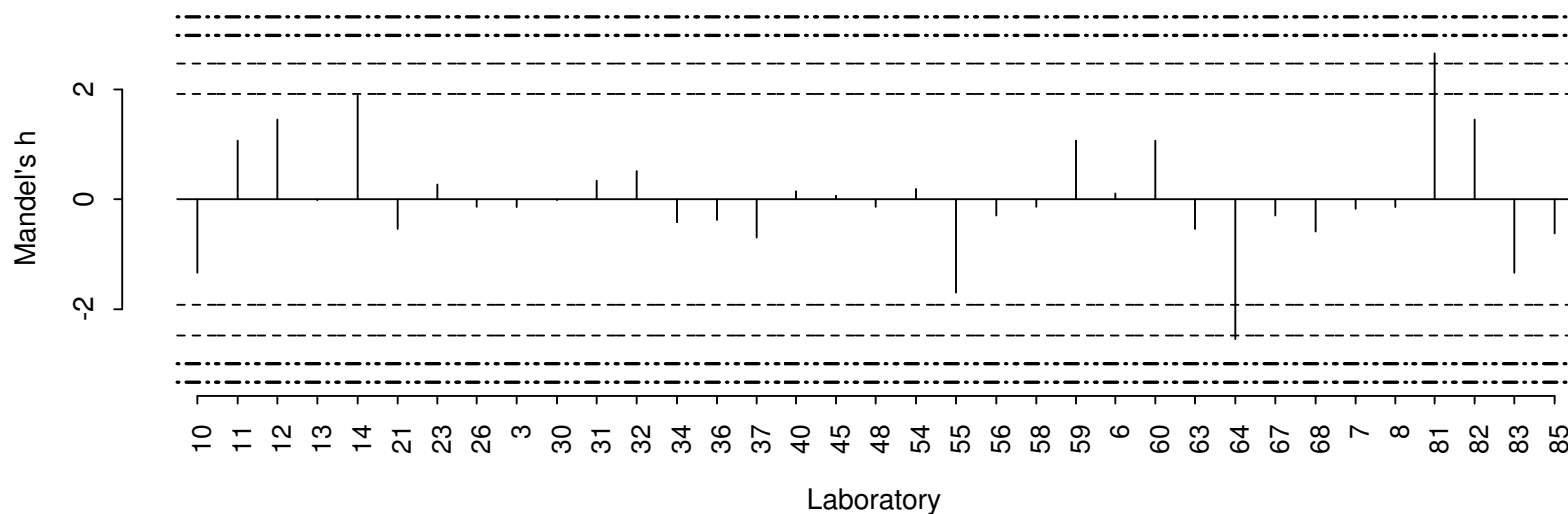
S: 81,82

E: hk77;h11;k85

Mandel's h and k plots of sample B

6 - Exchangeable Mn - Sample B

Step:3; Nlab:35; Mgen:0.03117; Fval:33.03; Pval:0; sRep:0.002519; sLab:0.00823; sRpr:0.008606; CV:27.61

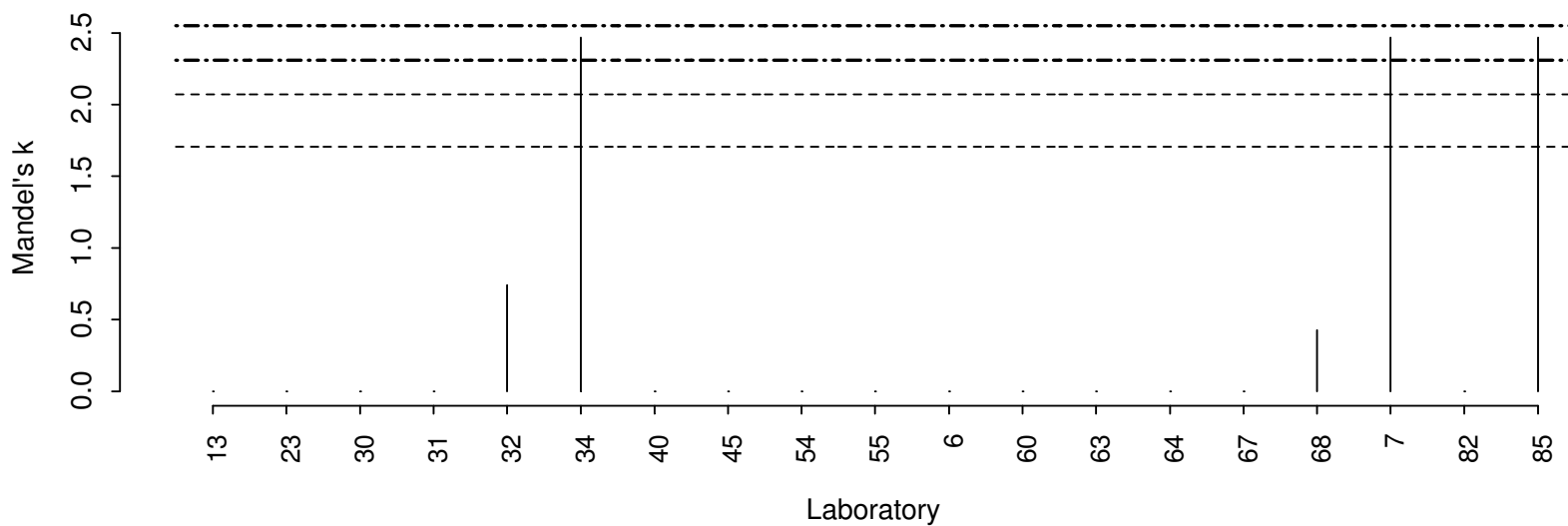
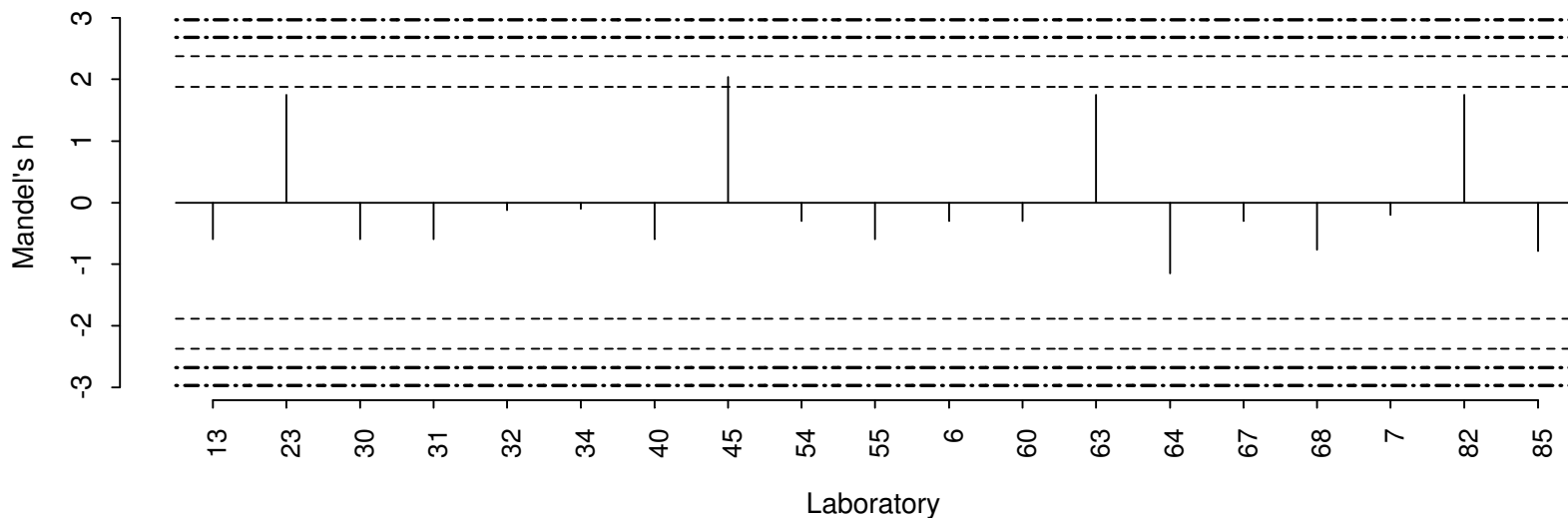


E: hk77,k42

Mandel's h and k plots of sample C

6 - Exchangeable Mn - Sample C

Step:4; Nlab:19; Mgen:0.004023; Fval:641.8; Pval:0; sRep:0.000234; sLab:0.003419; sRpr:0.003427; CV:85.2



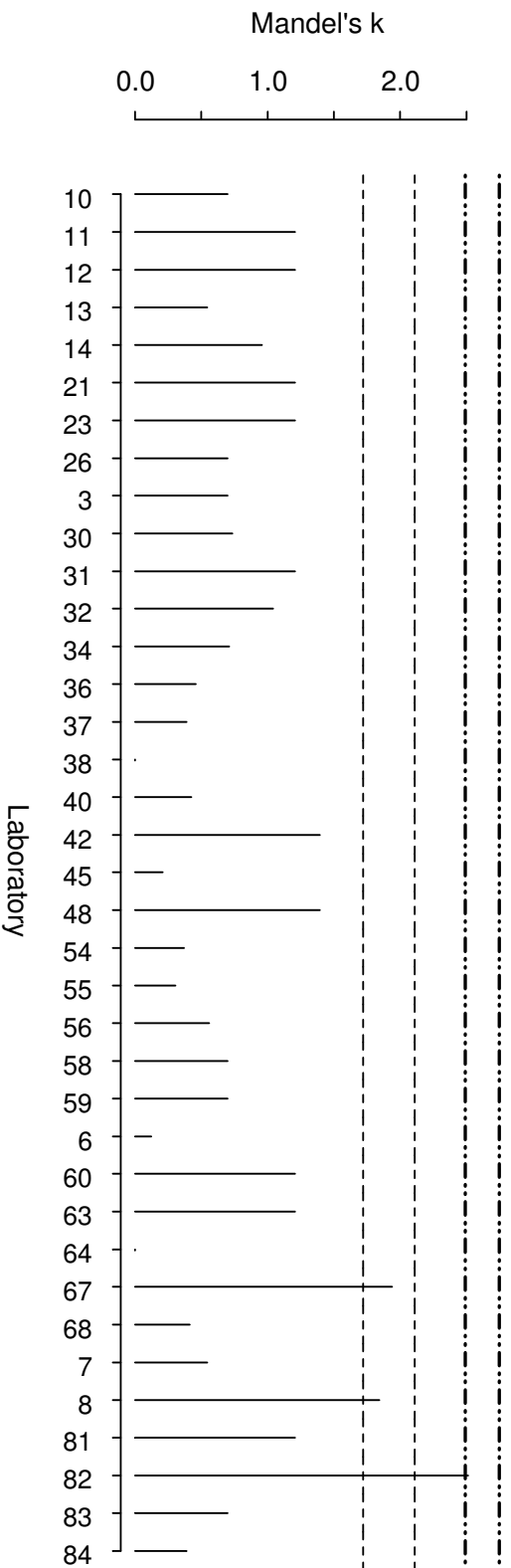
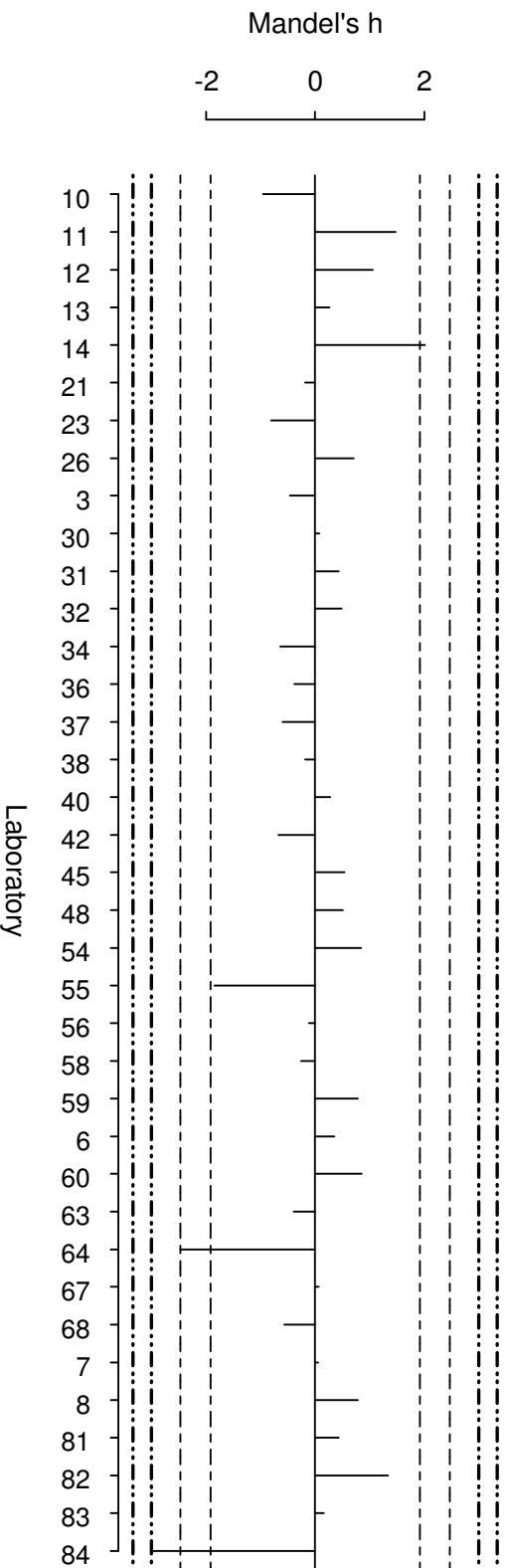
S: 34,7,85

E: hk77;hk11;hk12;h81

Mandel's h and k plots of sample D

6 - Exchangeable Mn - Sample D

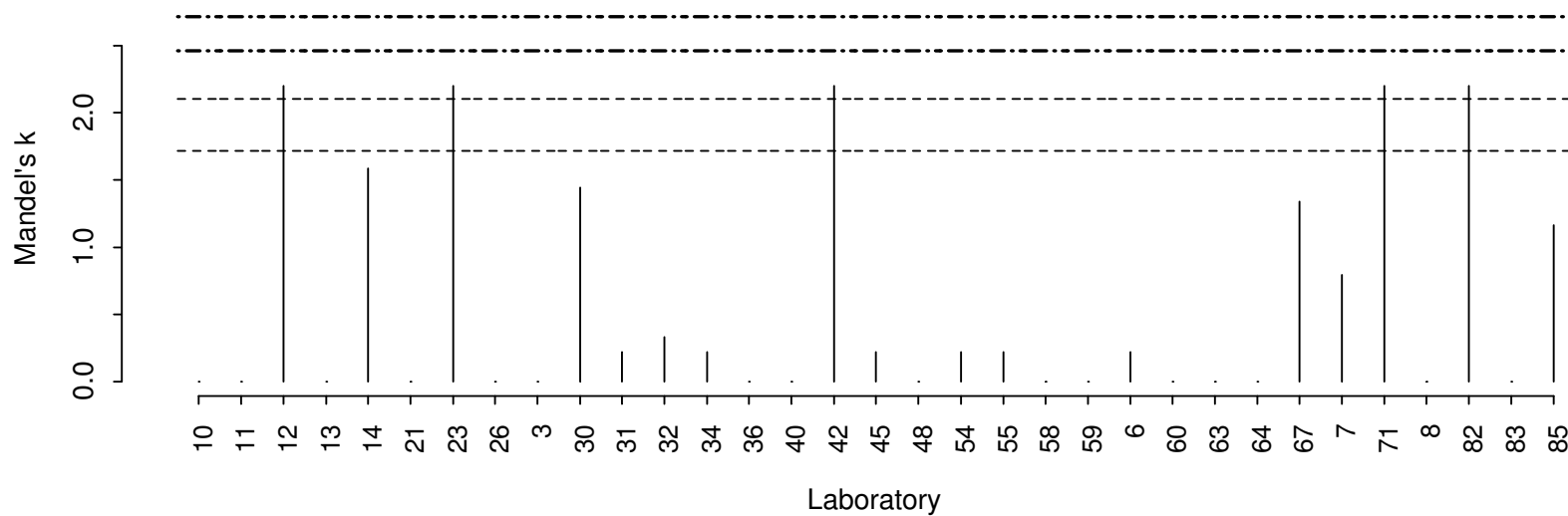
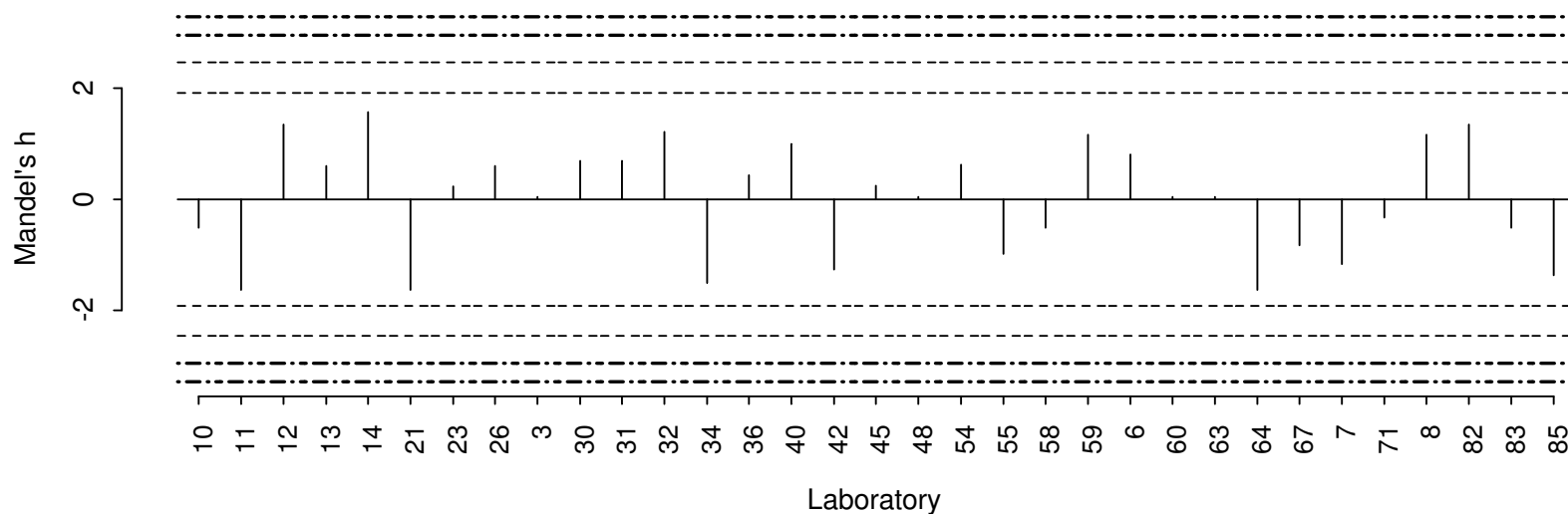
Step:4; NIab:37; Mgen:0.189; Fval:100.8; Pval:0; sRep:0.008285; sLab:0.04778; sRpr:0.04849; CV:25.65



Mandel's h and k plots of sample E

6 - Exchangeable Mn - Sample E

Step:3; Nlab:33; Mgen:0.04923; Fval:139.4; Pval:0; sRep:0.002623; sLab:0.01782; sRpr:0.01801; CV:36.58

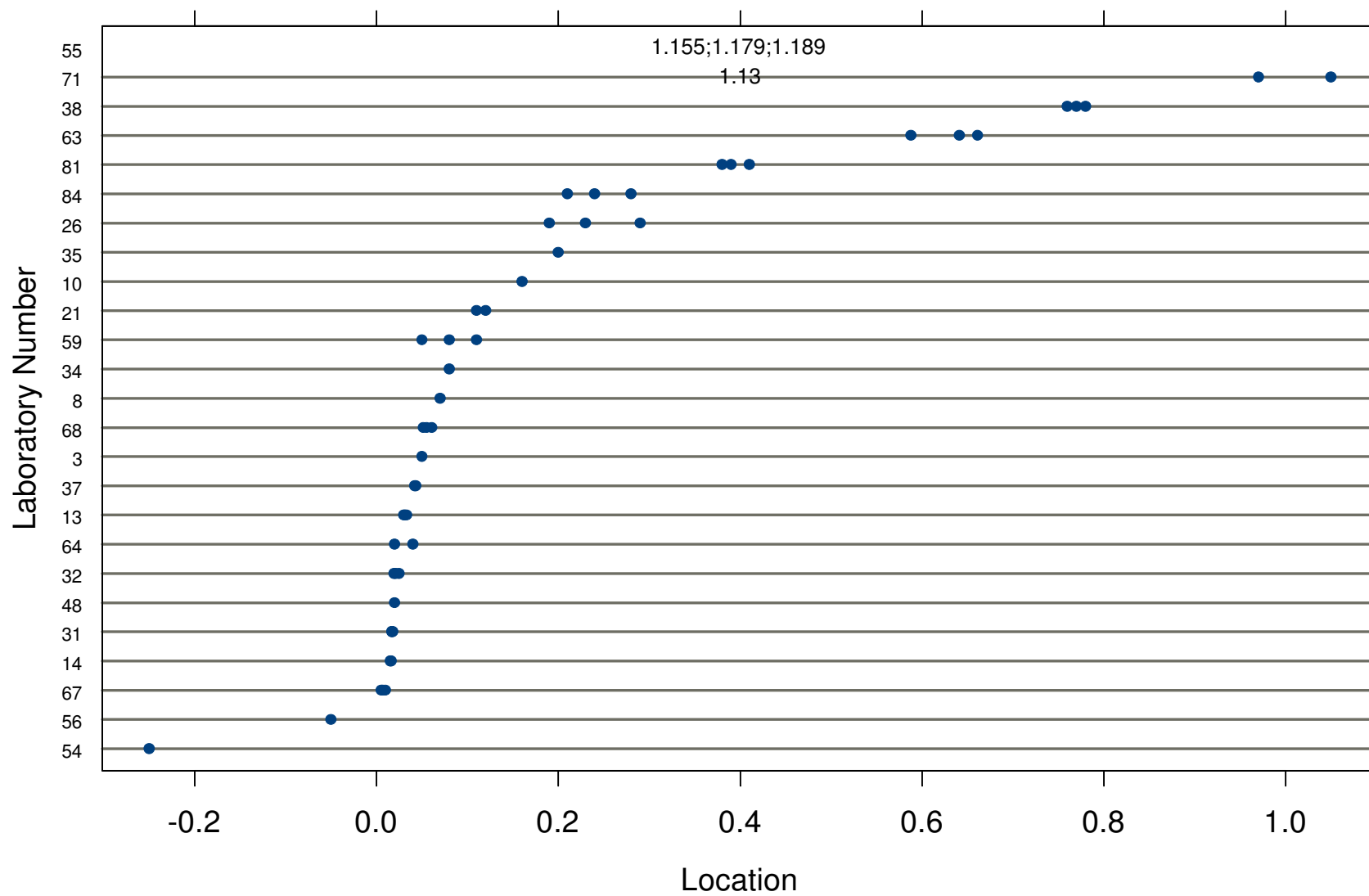


E: hk77;k56;k68

Free H⁺

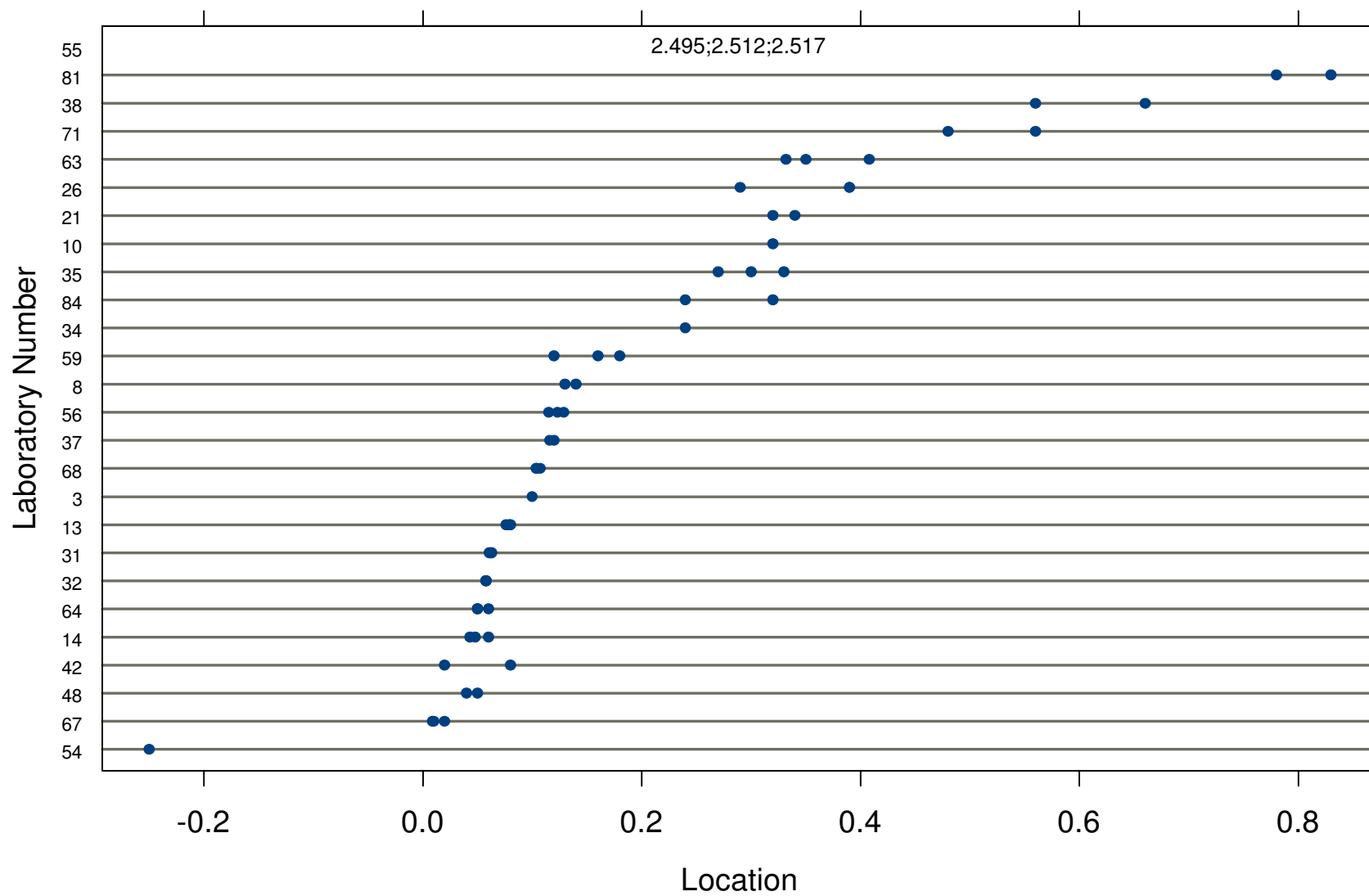
Dot plot sample A

6 - Free H - Sample A



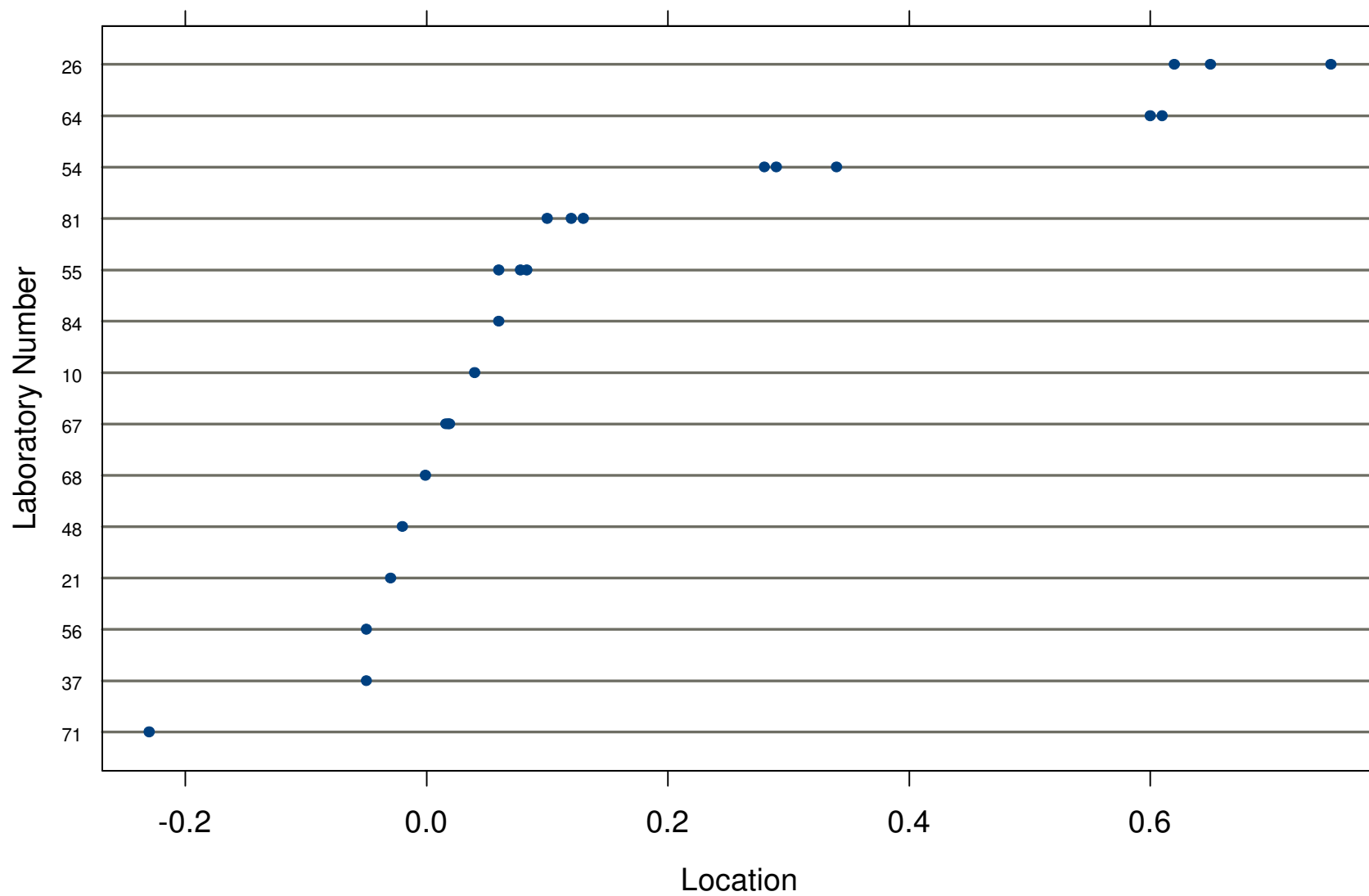
Dot plot sample B

6 - Free H - Sample B



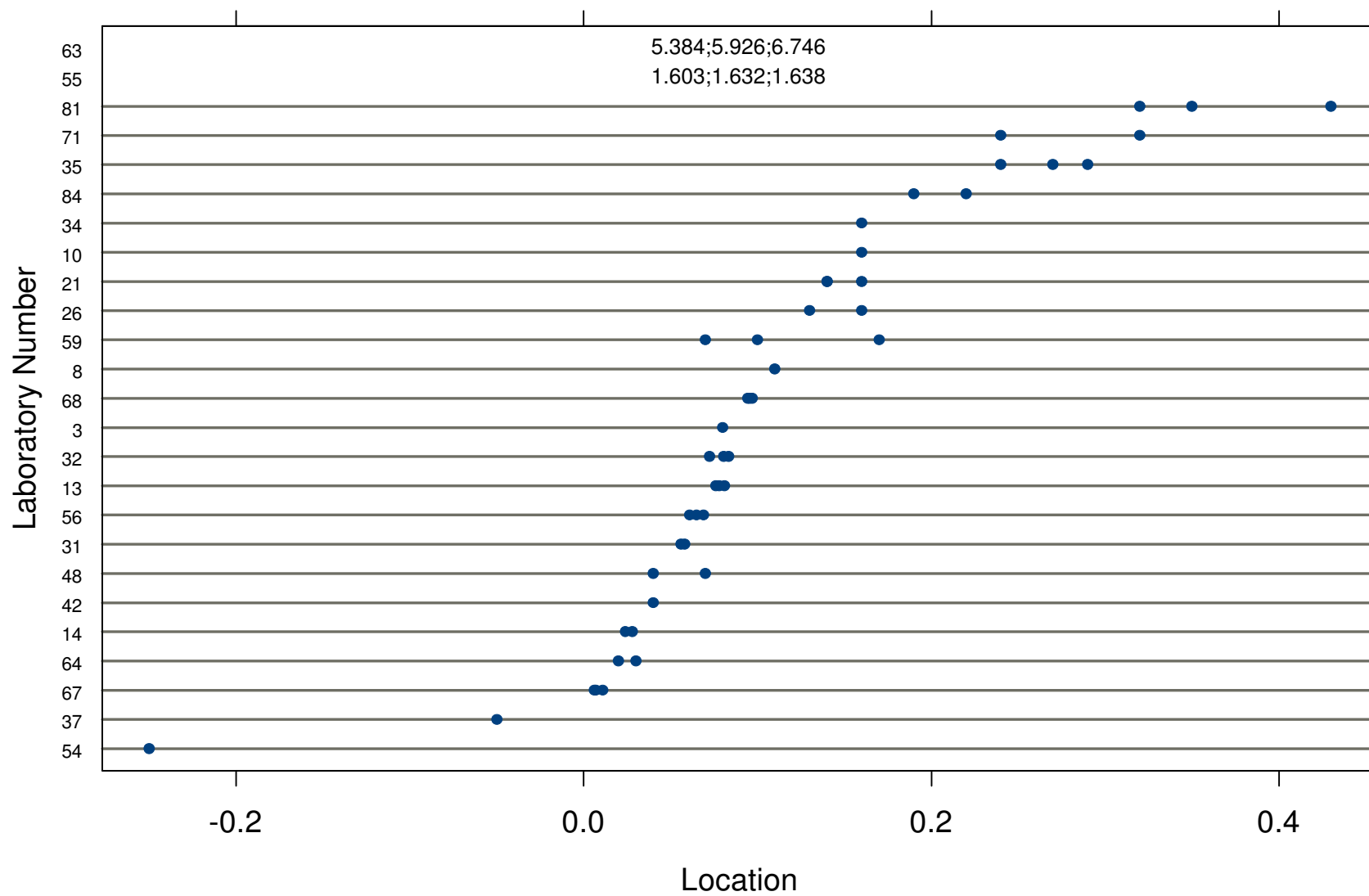
Dot plot sample C

6 - Free H - Sample C



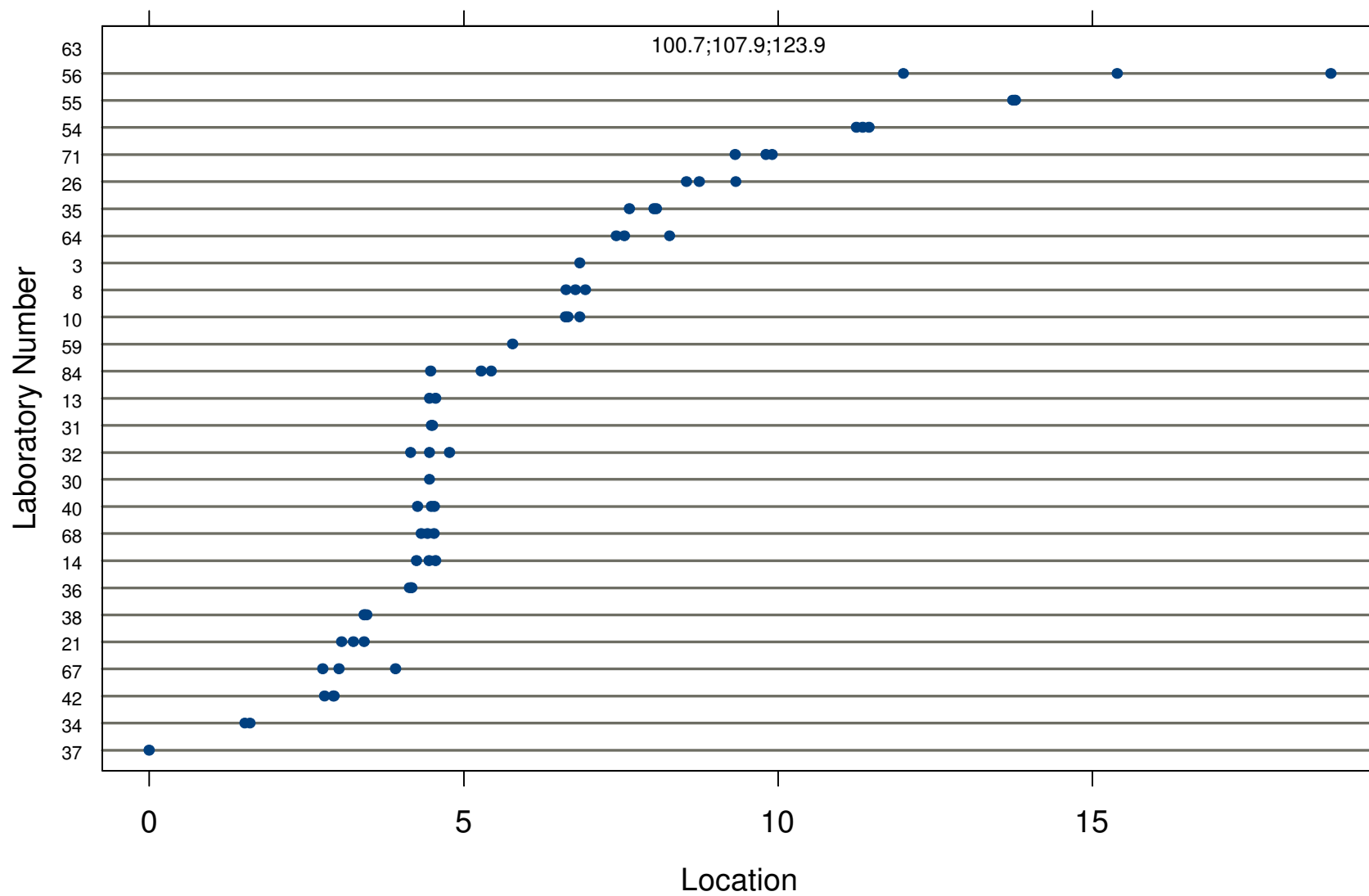
Dot plot sample D

6 - Free H - Sample D

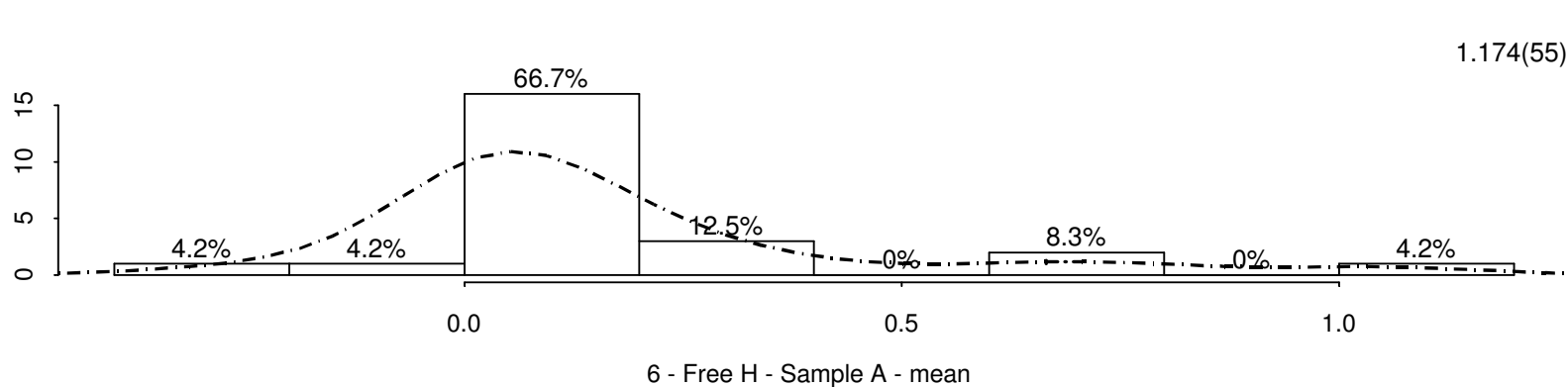


Dot plot sample E

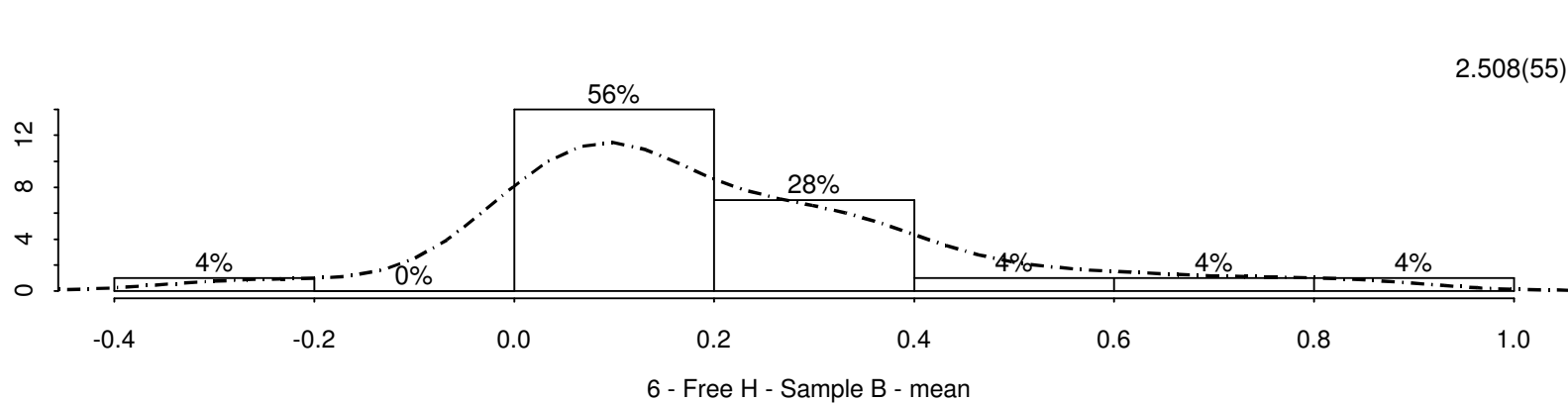
6 - Free H - Sample E



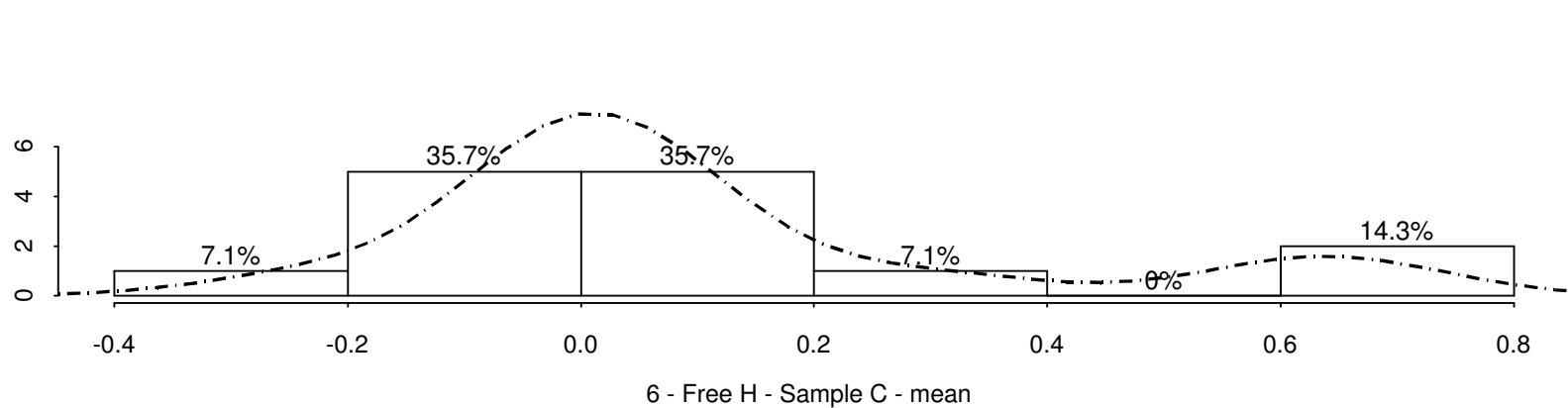
Histogram of the means of samples A, B and C



N: 25 NA: 0 Z: 0 E: 0,1 U: 24
a: 0.2075 m: 0.07 s: 0.3438

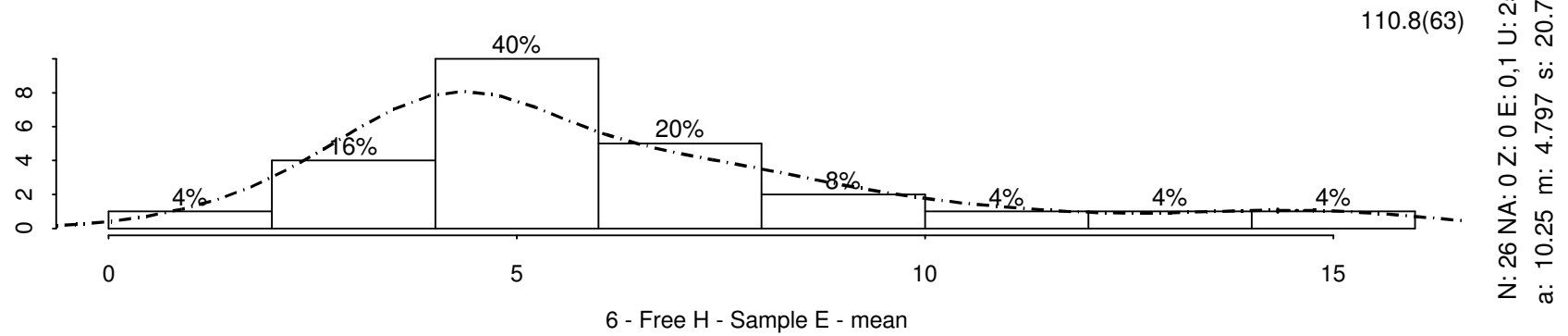
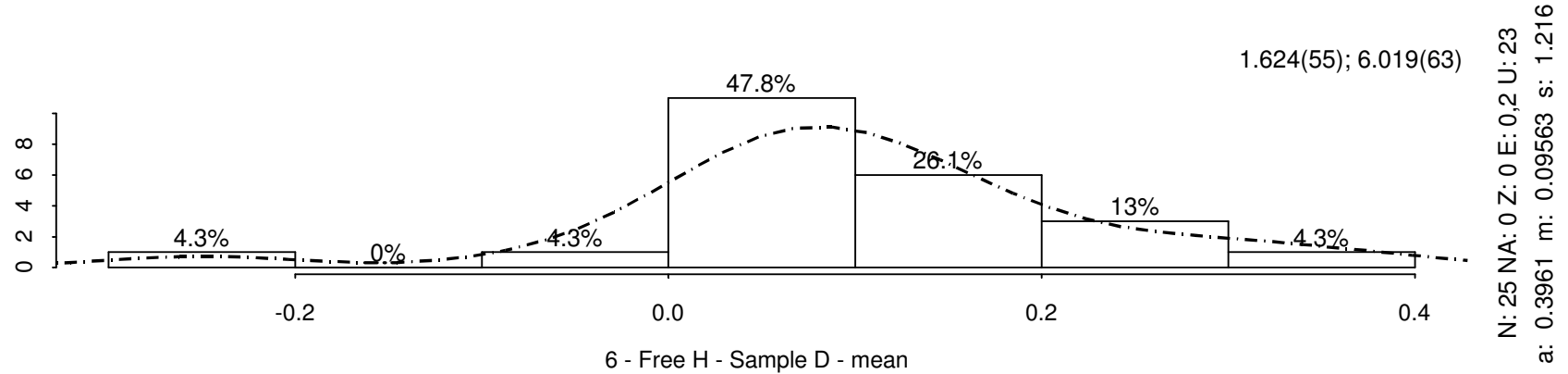


N: 26 NA: 0 Z: 0 E: 0,1 U: 25
a: 0.2893 m: 0.1278 s: 0.5016

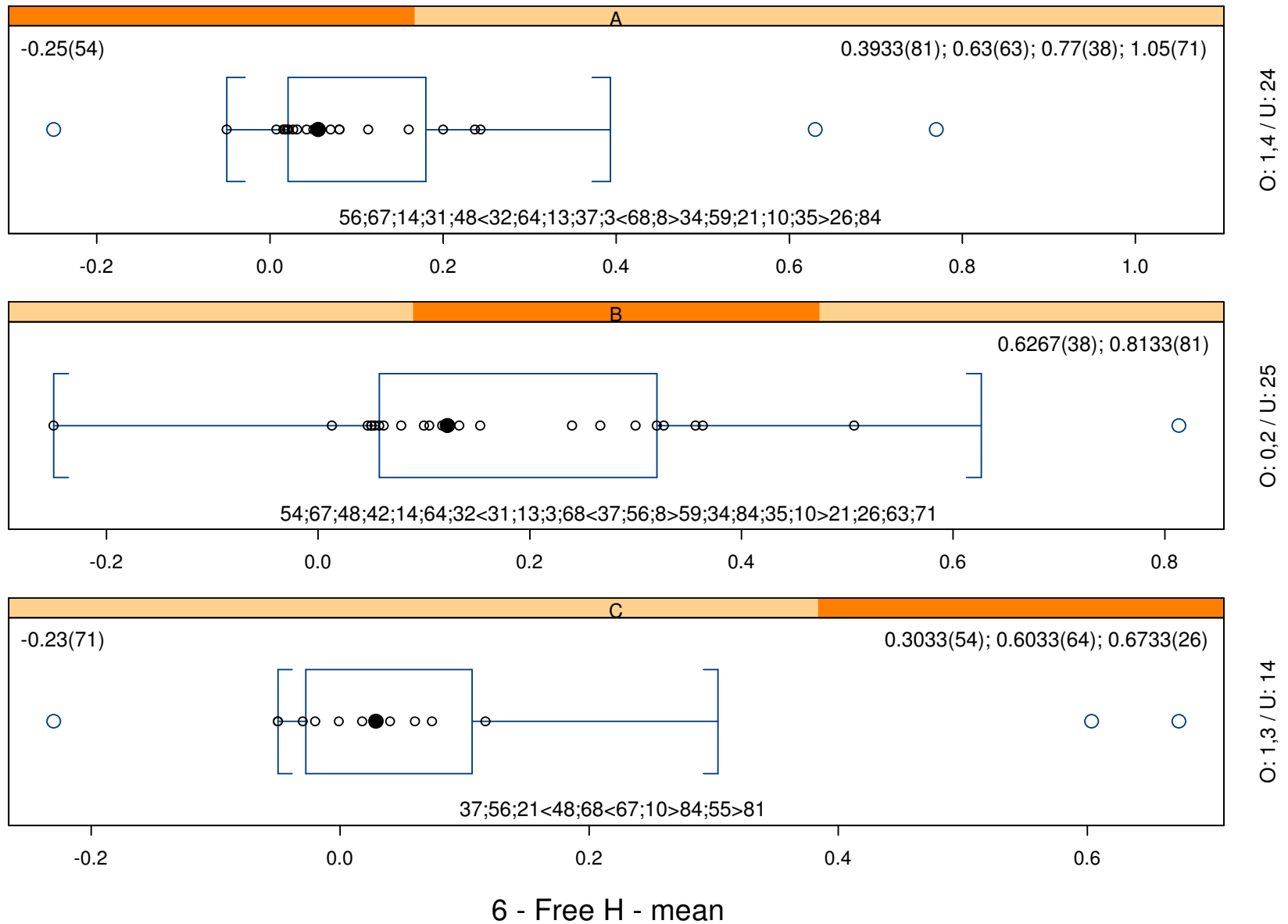


N: 14 NA: 0 Z: 0 E: 0 U: 14
a: 0.1076 m: 0.02883 s: 0.2528

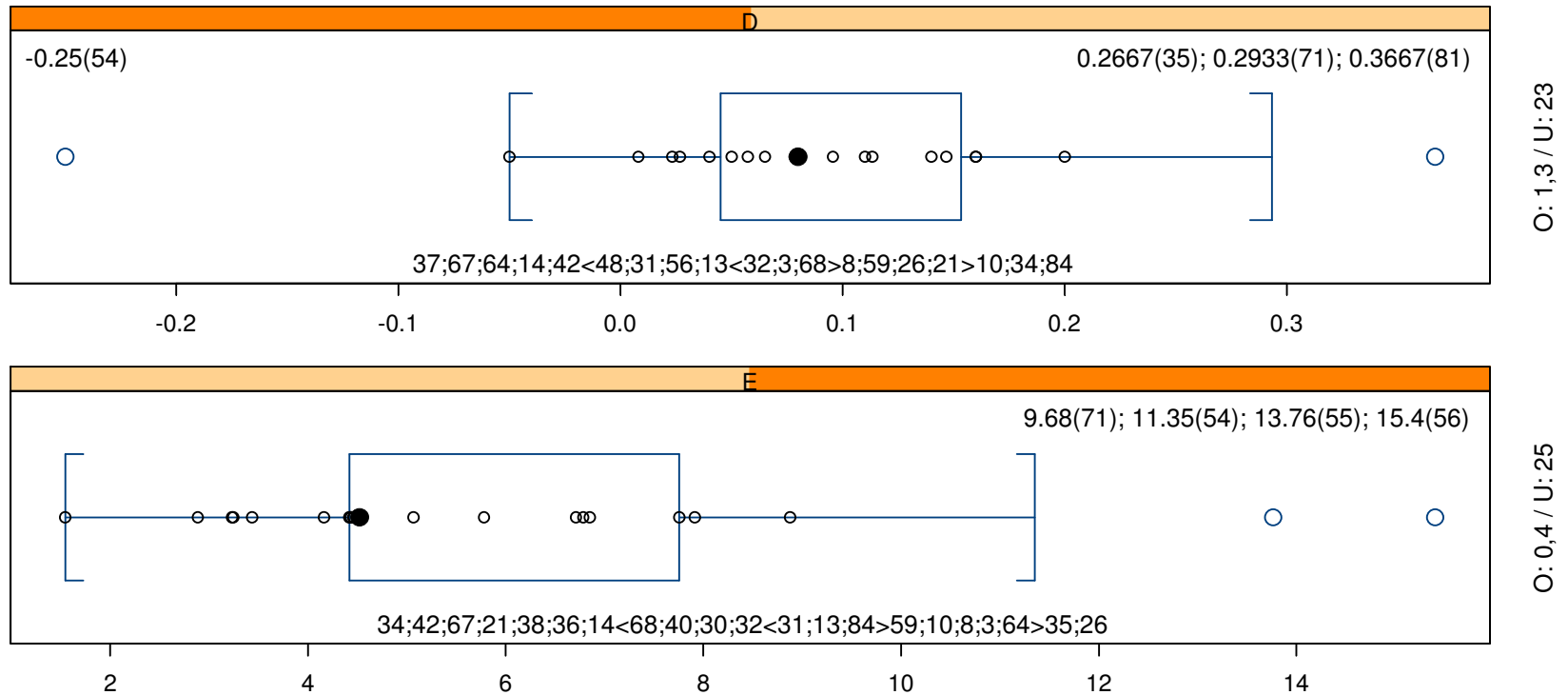
Histogram of the means of samples D and E



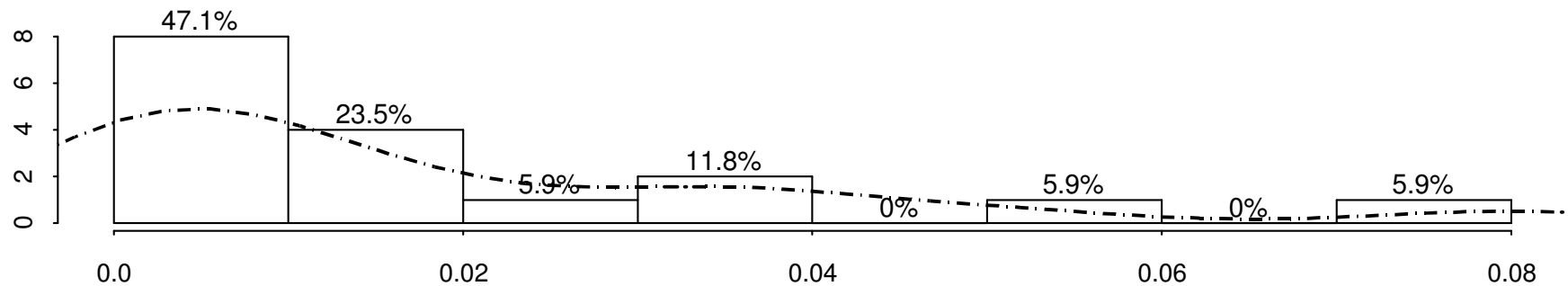
Box plot of the means of samples A, B and C



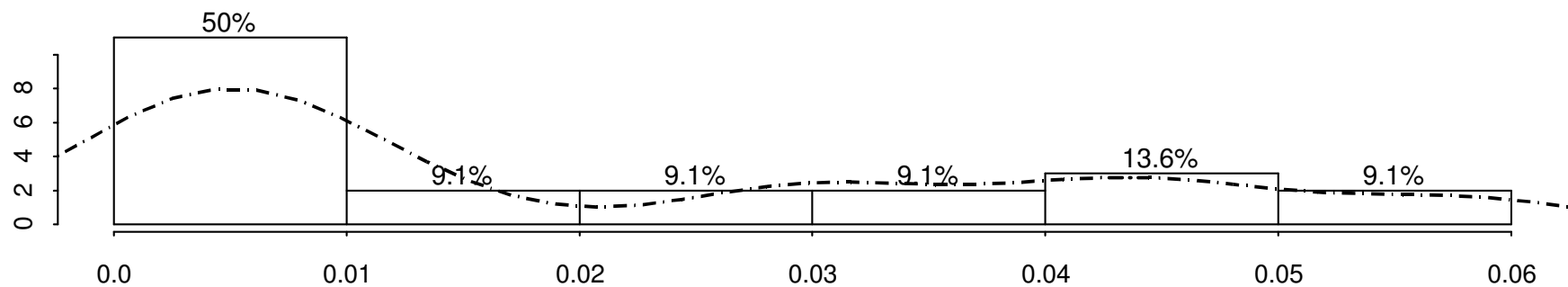
Box plot of the means of samples D and E



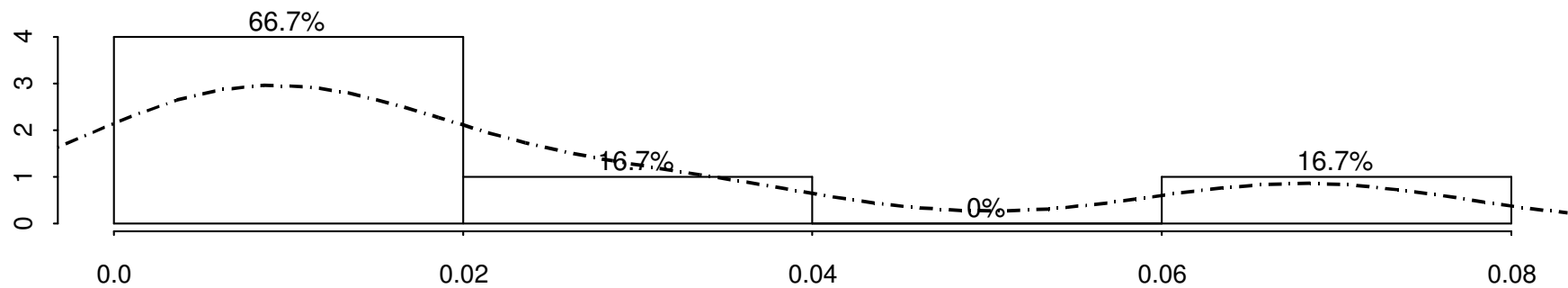
Histogram of the standard deviations of samples A, B and C



6 - Free H - Sample A - stdev



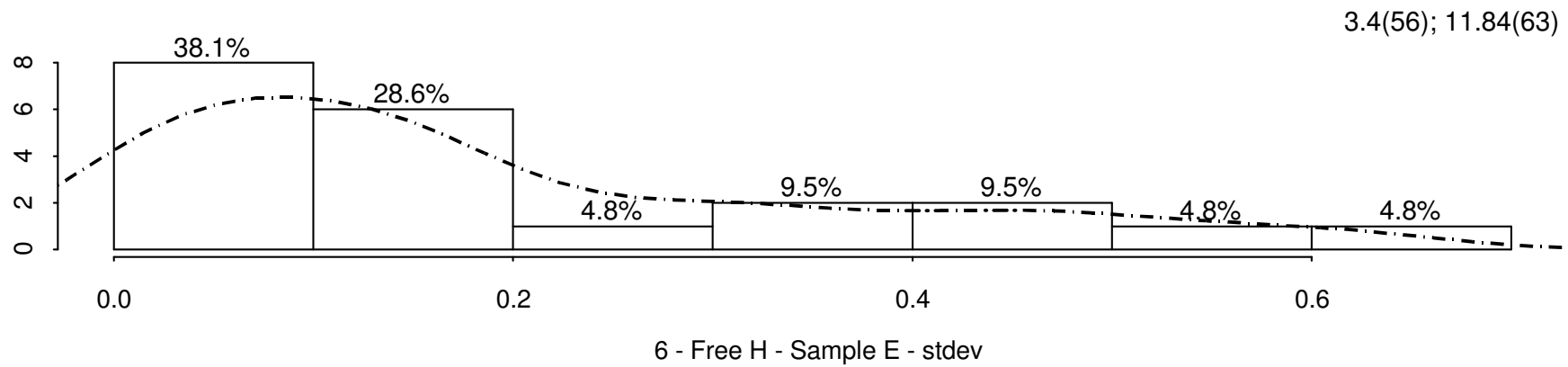
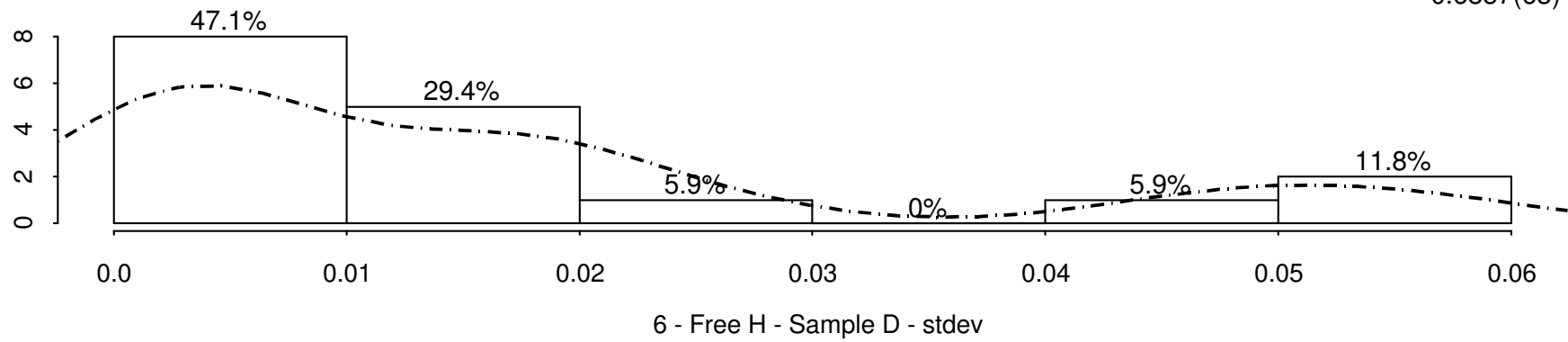
6 - Free H - Sample B - stdev



6 - Free H - Sample C - stdev

N: 17 NA: 0 Z: 0 E: 0 U: 17
N: 22 NA: 0 Z: 0 E: 0 U: 22
N: 6 NA: 0 Z: 0 E: 0 U: 6
a: 0.02248 m: 0.01369 s: 0.0247a: 0.02042 m: 0.01013 s: 0.01994 a: 0.01803 m: 0.01 s: 0.02209

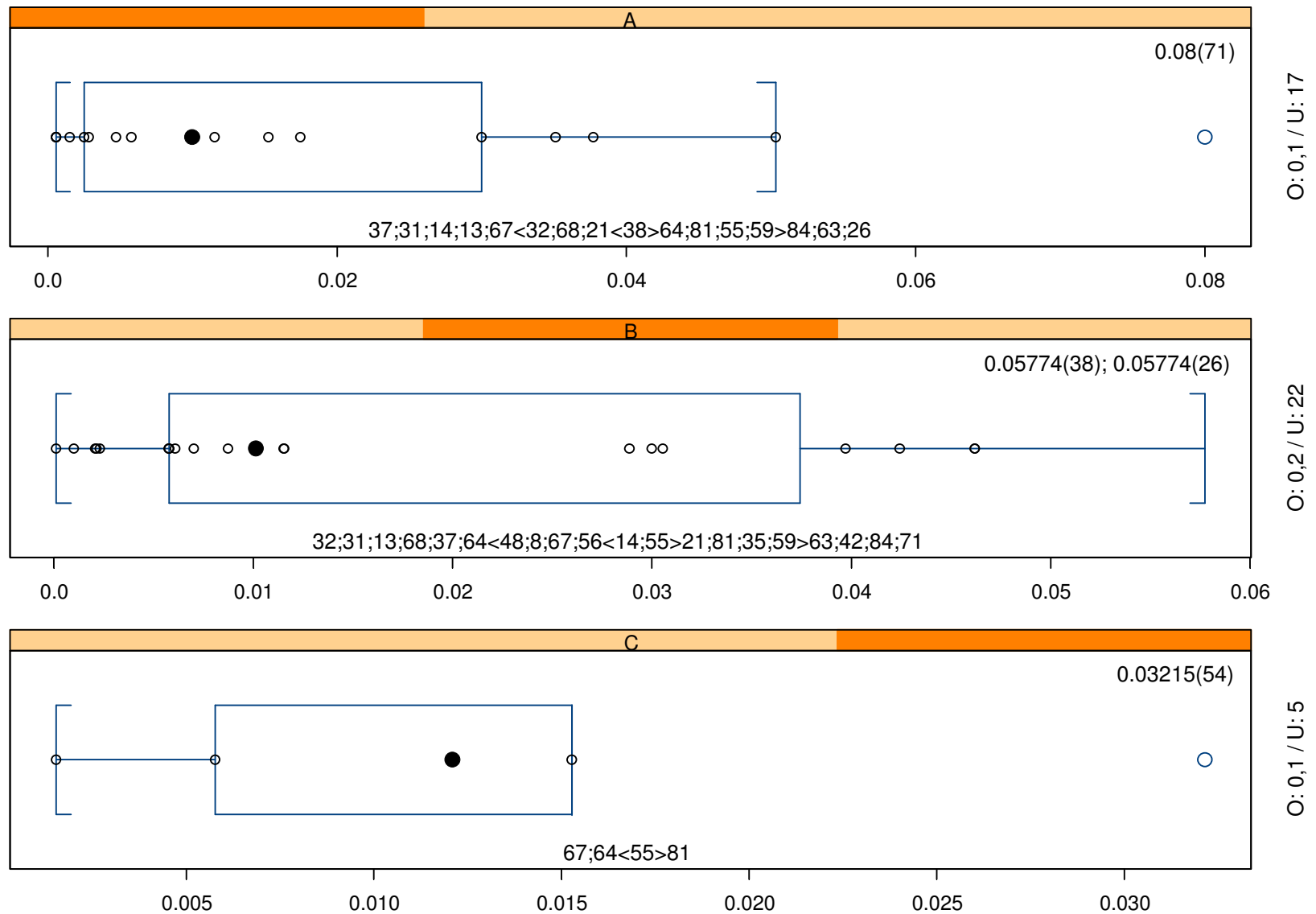
Histogram of the standard deviations of samples D and E



N: 18 NA: 0 Z: 0 E: 0,1 U: 17
a: 0.05405 m: 0.01443 s: 0.1586

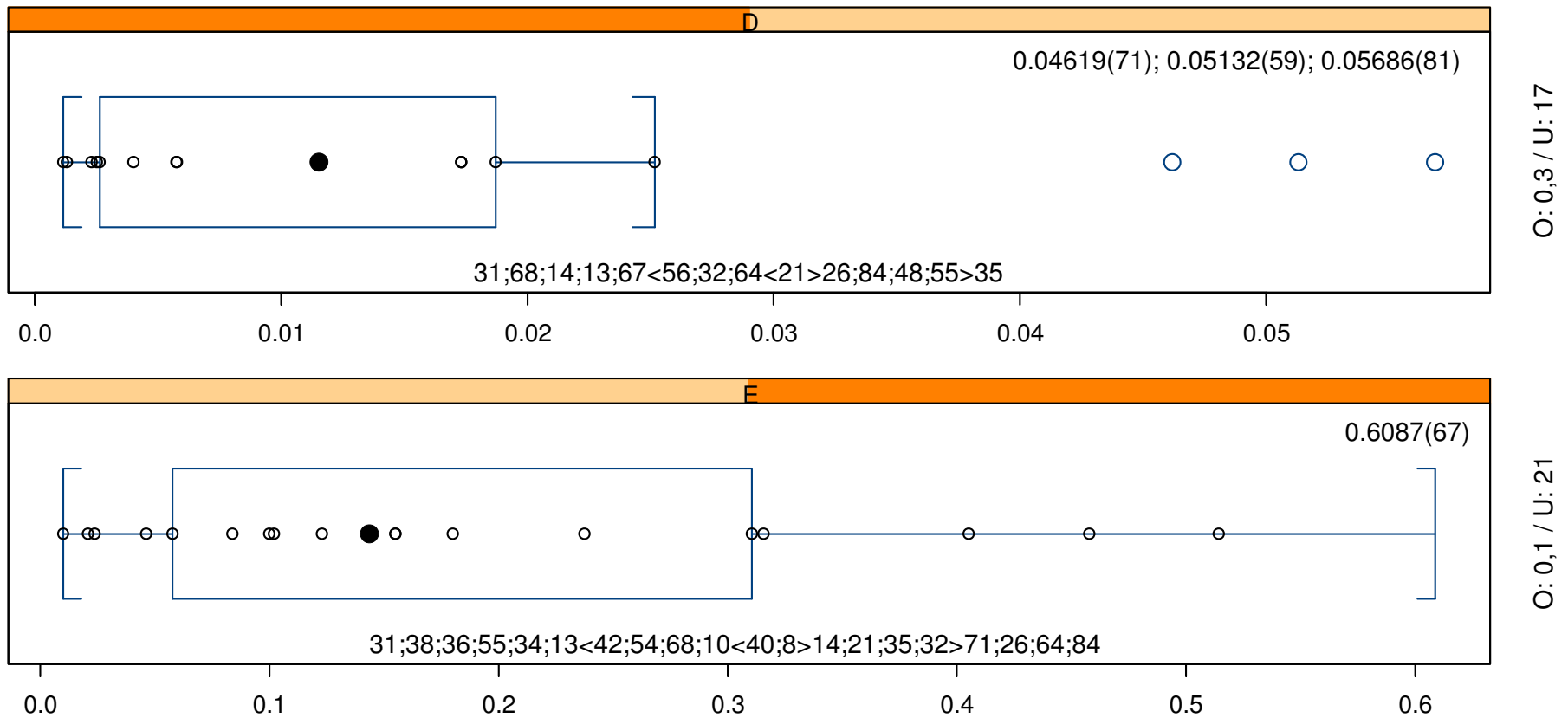
N: 23 NA: 0 Z: 0 E: 0,2 U: 21
a: 0.8398 m: 0.155 s: 2.496

Box plot of the standard deviations of samples A, B and C



6 - Free H - stdev

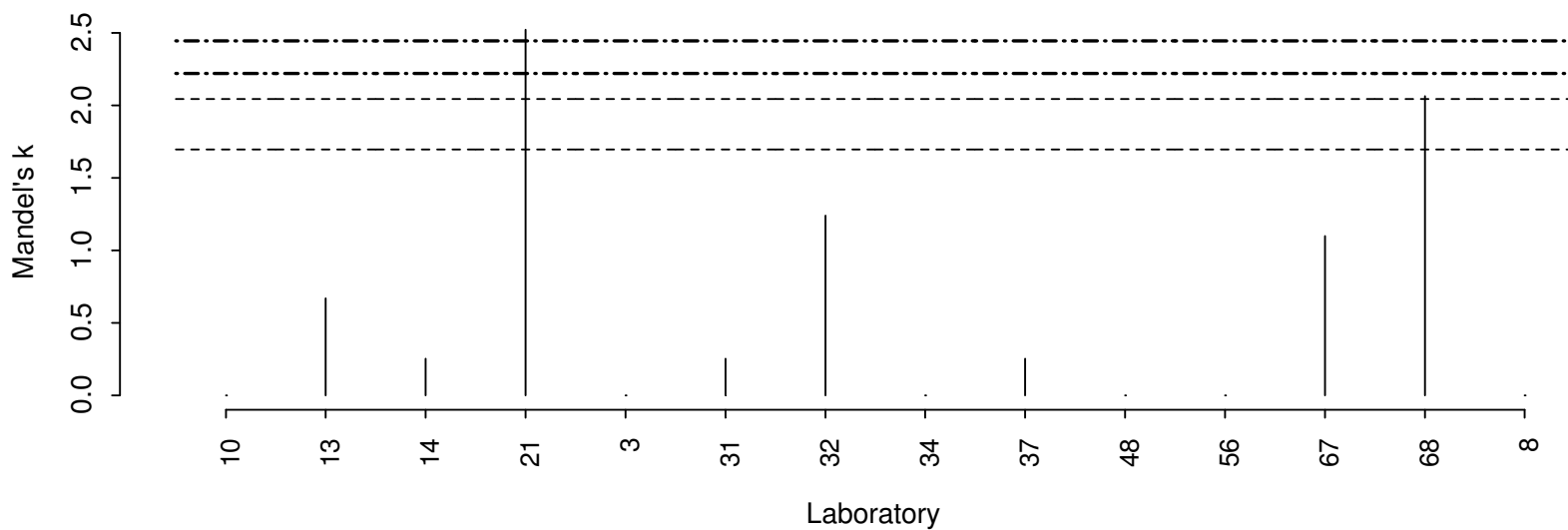
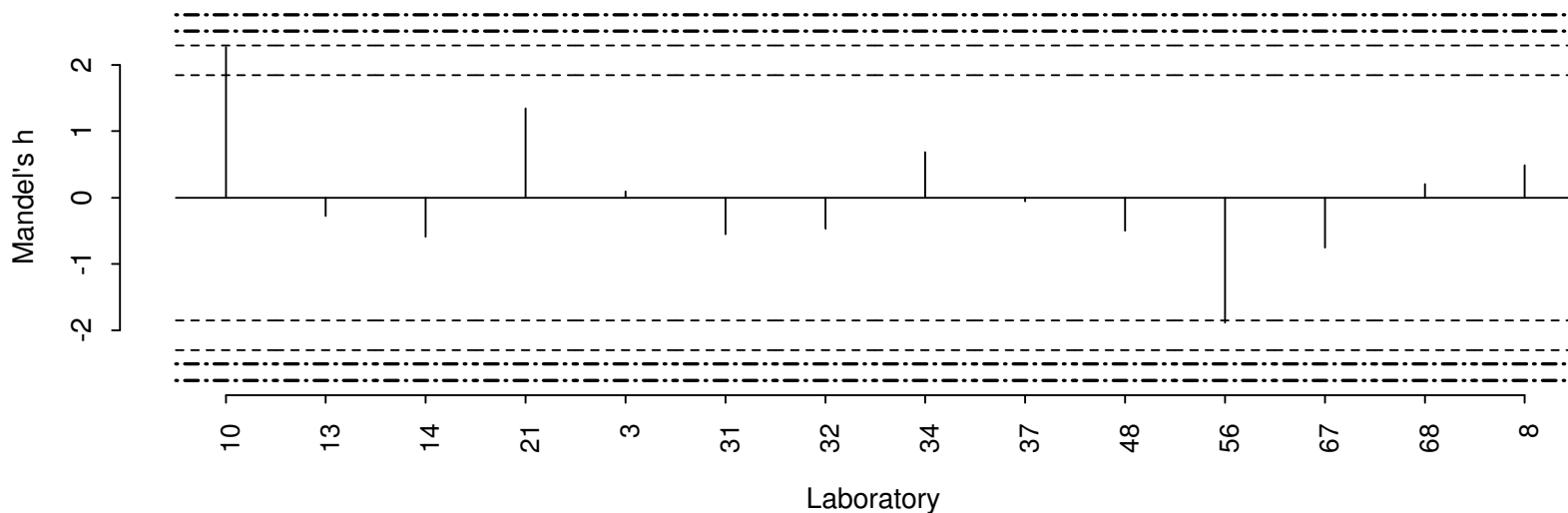
Box plot of the standard deviations of samples D and E



Mandel's h and k plots of sample A

6 - Free H - Sample A

Step:7; Nlab:14; Mgen:0.04531; Fval:1468; Pval:0; sRep:0.002289; sLab:0.05062; sRpr:0.05067; CV:111.8



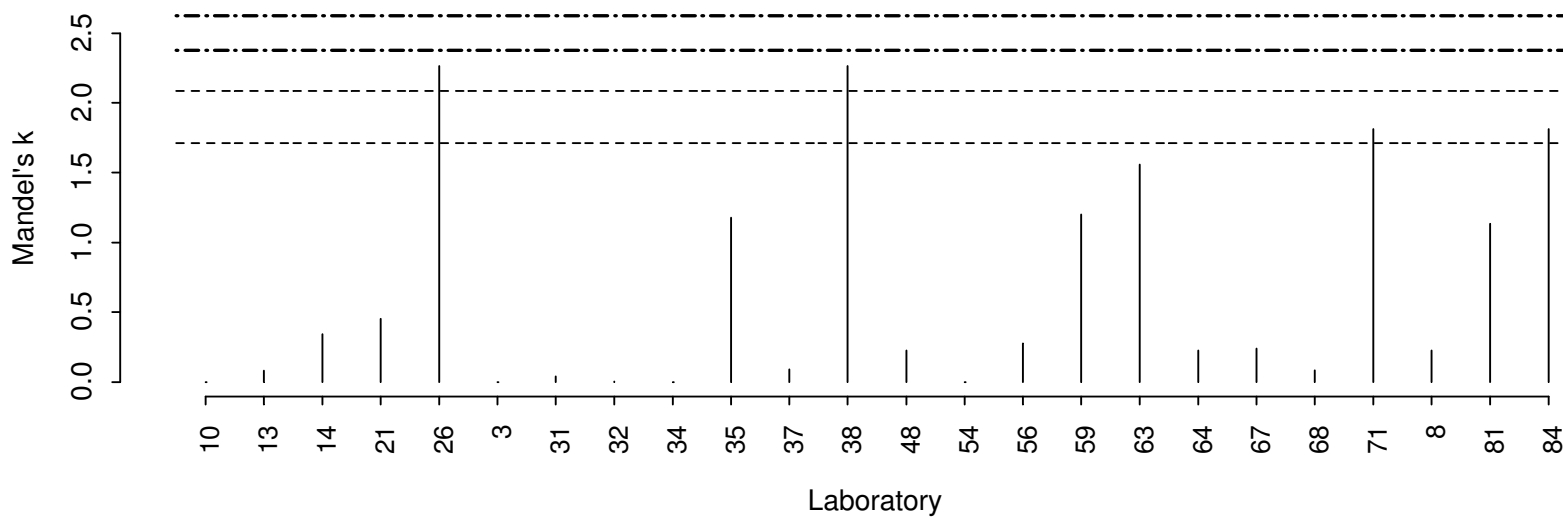
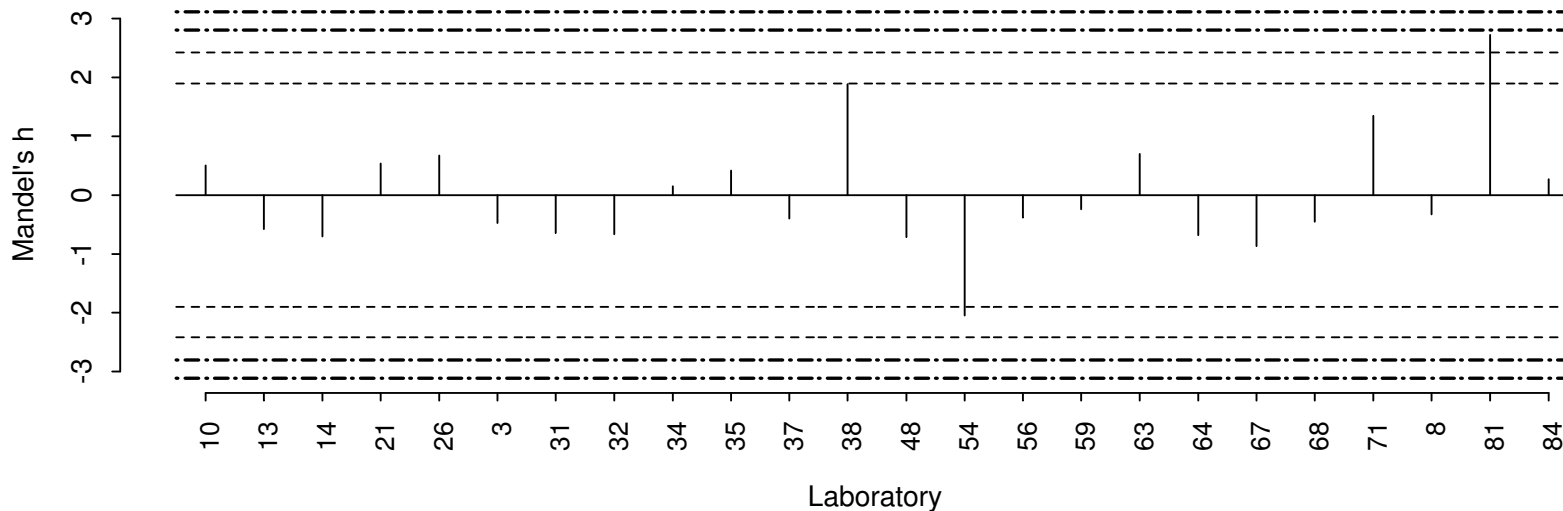
O: 21

E: hk71;k26;hk55;hk63;hk38;k59;k84;hk81;h54;k64

Mandel's h and k plots of sample B

6 - Free H - Sample B

Step:2; Nlab:24; Mgen:0.2068; Fval:230.2; Pval:0; sRep:0.02549; sLab:0.2228; sRpr:0.2242; CV:108.4

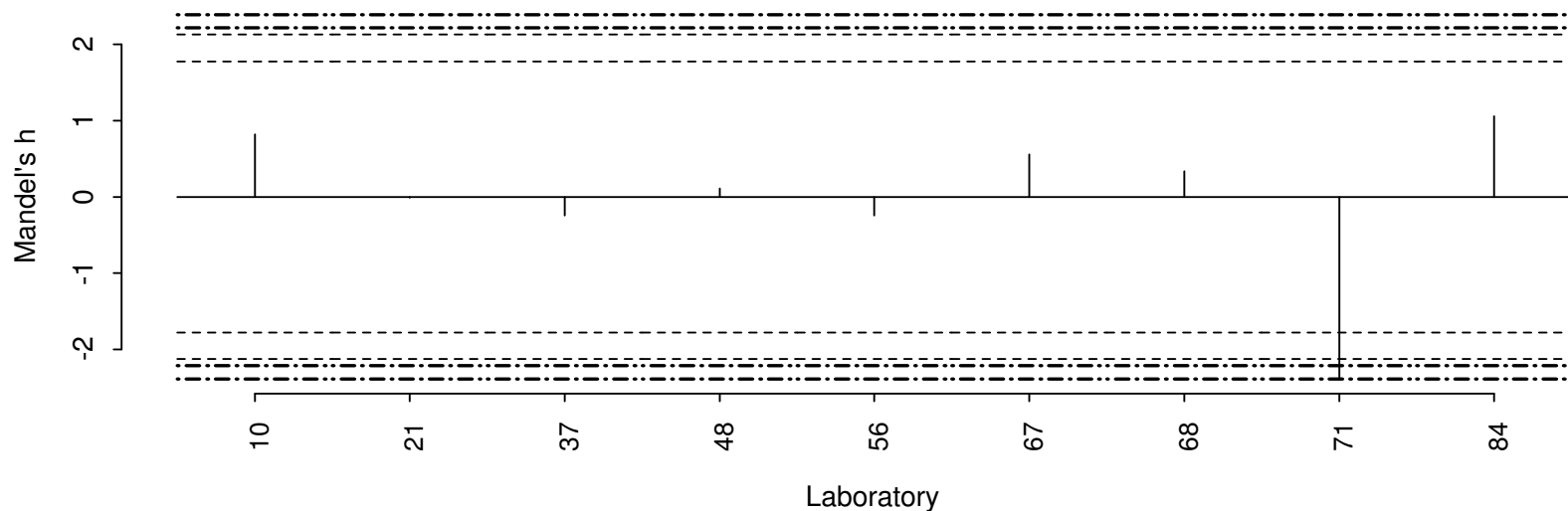


E: h55

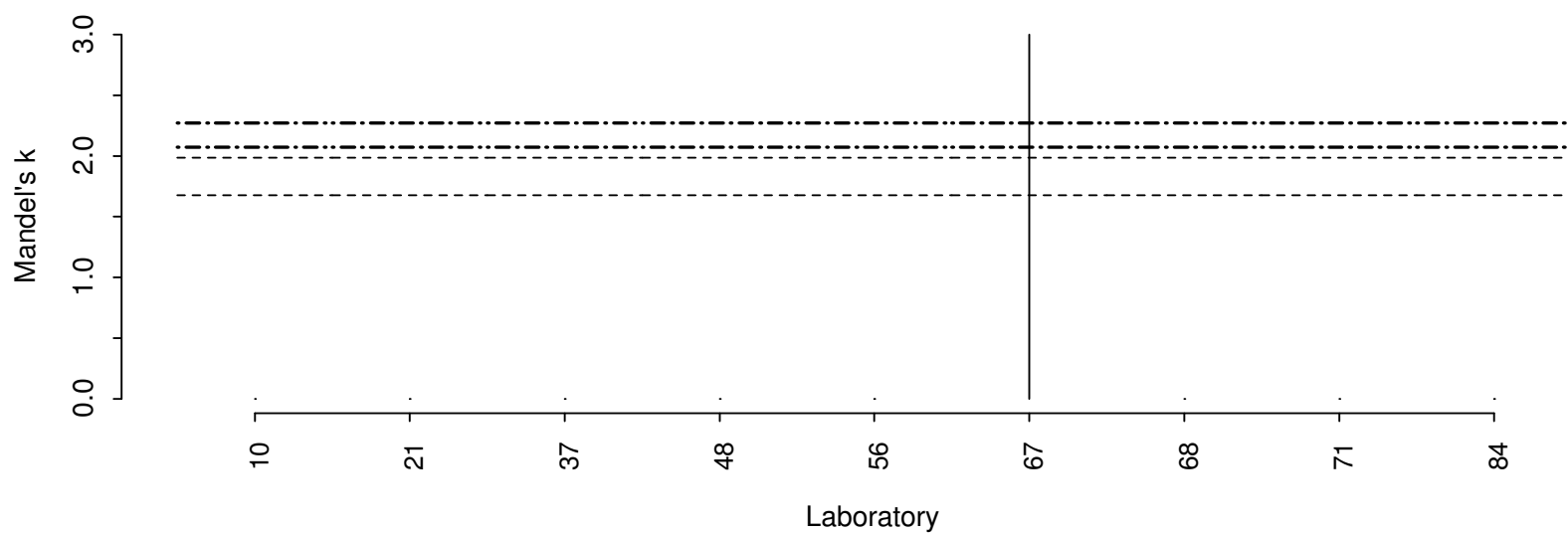
Mandel's h and k plots of sample C

6 - Free H - Sample C

Step:5; Nlab:9; Mgen:-0.02926; Fval:82458; Pval:0; sRep:0.0005092; sLab:0.08442; sRpr:0.08442; CV:-288.5



S: 71



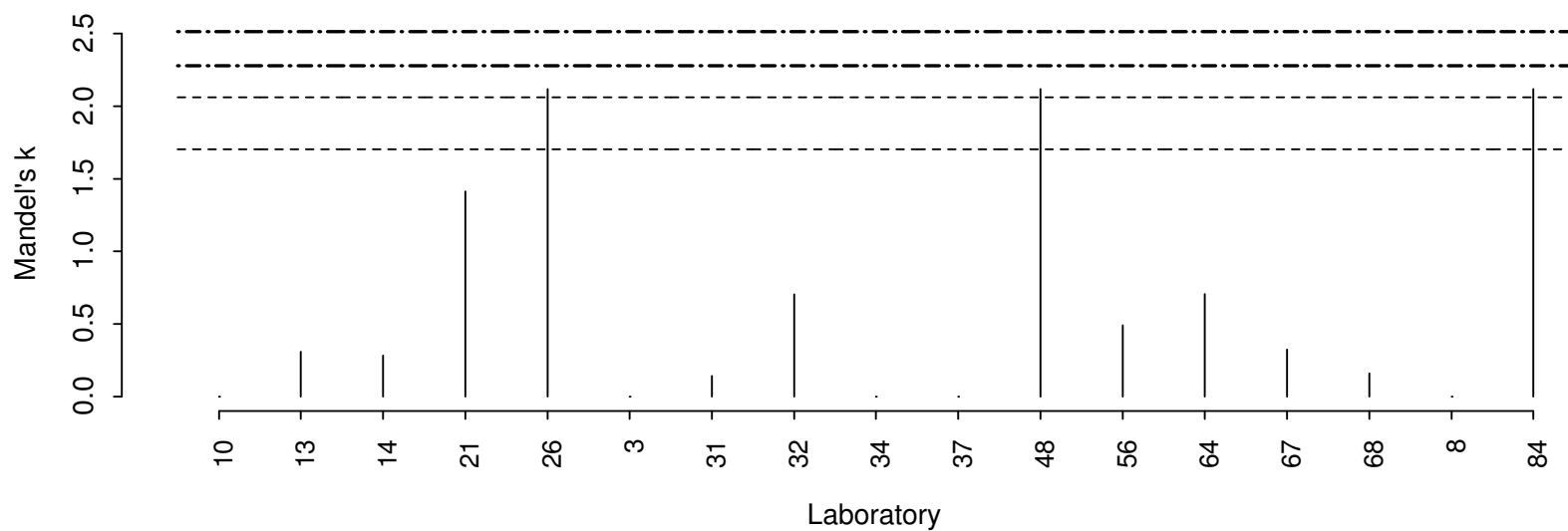
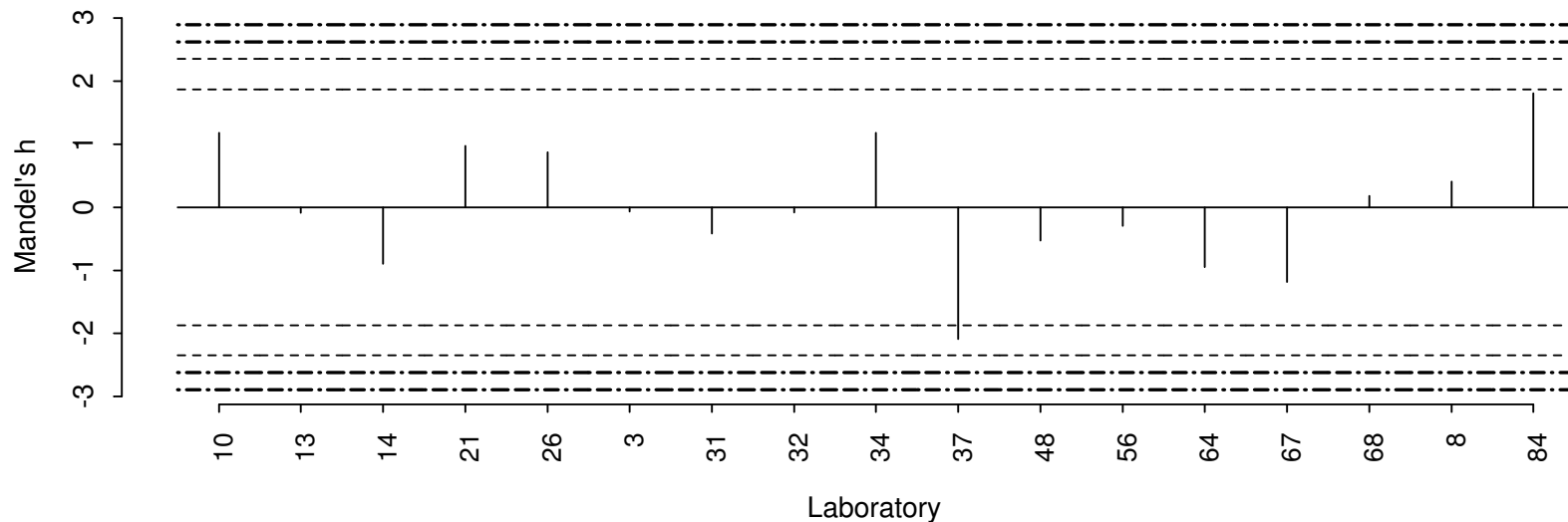
O: 67

E: hk26;k54;hk64;k81;k55

Mandel's h and k plots of sample D

6 - Free H - Sample D

Step:5; Nlab:17; Mgen:0.0841; Fval:184.6; Pval:0; sRep:0.00818; sLab:0.064; sRpr:0.06452; CV:76.71

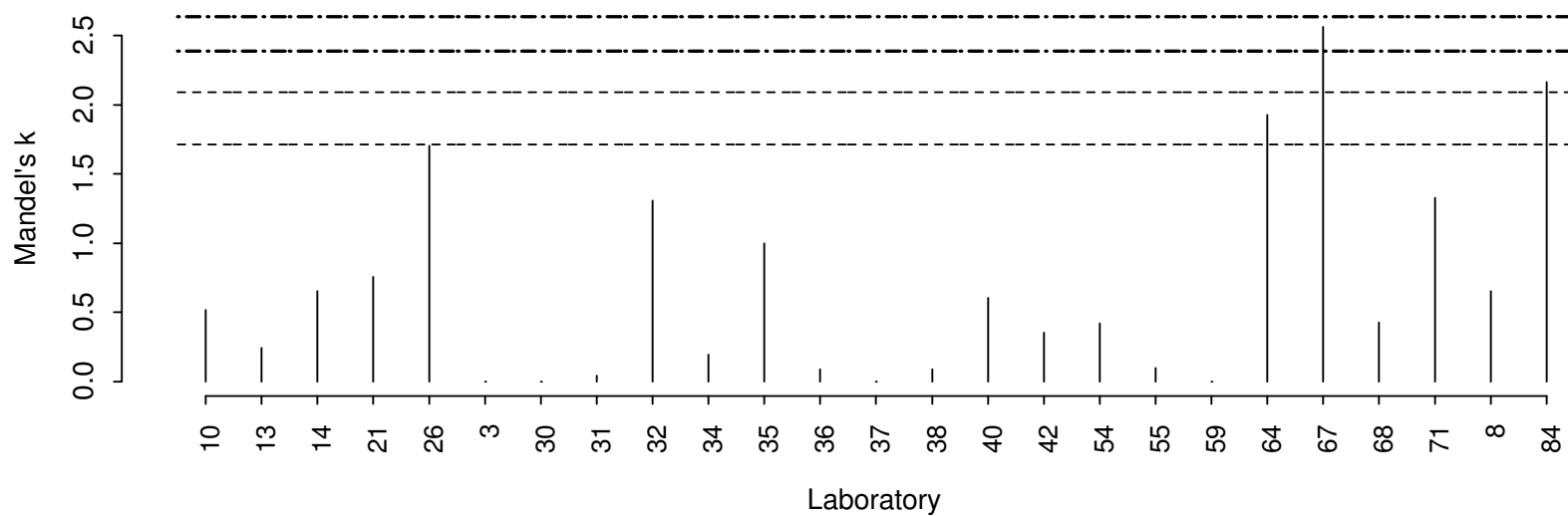
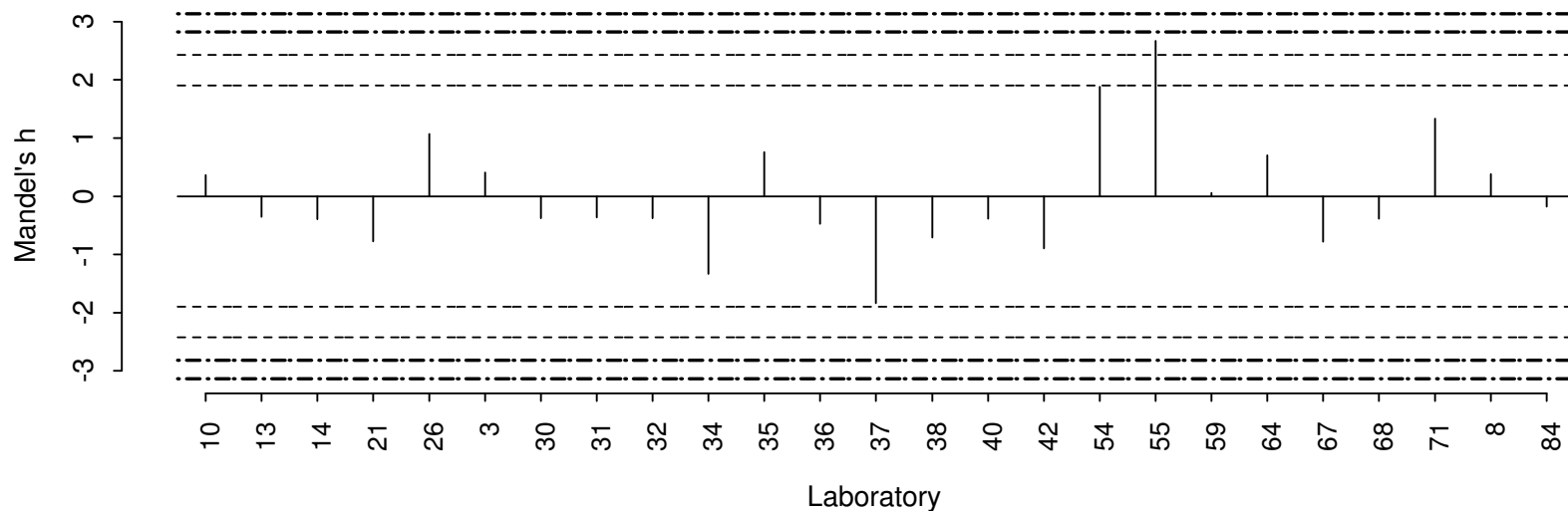


E: hk63;h55;k81h;k59;k71;35k;h54

Mandel's h and k plots of sample E

6 - Free H - Sample E

Step:3; Nlab:25; Mgen:5.611; Fval:495.1; Pval:0; sRep:0.2377; sLab:3.05; sRpr:3.059; CV:54.52



E: hk63;k56

S: 67