



## Article

# Antimicrobial Resistance and Clonal Lineages of *Staphylococcus Aureus* from Cattle, Their Handlers, and Their Surroundings: A Cross-Sectional Study from the One Health Perspective

## Supplementary Materials

**Table S1.** Farms, date and location of sample collection and distribution of the *S. aureus* isolates among cows, farmer and environment samples.

Farm	Date	Location	Sample	Sex	Year of birth	Breed	Isolate
1	25.02.2019	Vila Marim	Cow	F	2005	Maronesa	–
	25.02.2019	Vila Marim	Cow	F	2007	Maronesa	–
	25.02.2019	Vila Marim	Water	–	–	–	–
	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
2	25.02.2019	Vila Marim	Cow	F	2012	Crossbreed	–
	25.02.2019	Vila Marim	Cow	F	2014	Crossbreed	–
	25.02.2019	Vila Marim	Cow	F	2013	Crossbreed	–
	25.02.2019	Vila Marim	Cow	F	2014	Crossbreed	–
	25.02.2019	Vila Marim	Cow	F	2017	Crossbreed	–
	25.02.2019	Vila Marim	Cow	F	2015	Holstein-Friesian	–
	25.02.2019	Vila Marim	Cow	F	2017	Crossbreed	–
	25.02.2019	Vila Marim	Water	–	–	–	–
	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Cow	–	–	–	–
3	25.02.2019	Vila Marim	Cow	–	–	–	–
	25.02.2019	Vila Marim	Cow	F	2015	Holstein-Friesian	VS3218
	25.02.2019	Vila Marim	Cow	M	2018	Crossbreed	–
	25.02.2019	Vila Marim	Cow	M	2018	Crossbreed	–
	25.02.2019	Vila Marim	Cow	M	2018	Crossbreed	–
	25.02.2019	AGAREZ	Cow	F	2015	Holstein-Friesian	–
	25.02.2019	Vila Marim	Soil	–	–	–	–
4	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Cow	F	2015	Maronesa	–
	25.02.2019	Vila Marim	Cow	F	2012	Maronesa	–
	25.02.2019	Vila Marim	Water	–	–	–	–
	25.02.2019	Vila Marim	Soil	–	–	–	–
5	25.02.2019	Vila Marim	Farmer	–	–	–	–
	25.02.2019	Vila Marim	Cow	F	2011	Holstein-Friesian	–
	25.02.2019	Vila Marim	Water	–	–	–	–
6	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Cow	F	2013	Maronesa	–
	25.02.2019	Vila Marim	H5	–	–	–	VS3219
7	25.02.2019	Vila Marim	Cow	F	2009	Maronesa	–
	25.02.2019	Vila Marim	Cow	F	2006	Maronesa	–
	25.02.2019	Vila Marim	Water	–	–	–	–

	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
8	25.02.2019	Vila Marim	Cow	F	2009	Maronesa	–
	25.02.2019	Vila Marim	Cow	F	2009	Maronesa	–
	25.02.2019	Vila Marim	Water	–	–	–	–
	25.02.2019	Vila Marim	Soil	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
	25.02.2019	Vila Marim	Farmer	–	–	–	–
9	25.02.2019	Vila Marim	Cow	F	2018	Crossbreed	–
10	04.03.2019	Sirarelhos	Cow	F	2004	Maronesa	VS3220
	04.03.2019	Sirarelhos	Cow	F	2008	Maronesa	VS3221
	04.03.2019	Sirarelhos	Cow	F	2006	Maronesa	VS3222
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
	04.03.2019	Sirarelhos	Water	–	–	–	–
	04.03.2019	Sirarelhos	Cow	F	2004	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2007	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2012	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2012	Maronesa	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
11	04.03.2019	Sirarelhos	Cow	F	2011	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2012	Maronesa	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
12	04.03.2019	Galegos da Serra	Cow	F	2011	Maronesa	–
	04.03.2019	Galegos da Serra	Cow	F	2009	Maronesa	–
	04.03.2019	Galegos da Serra	Water	–	–	–	–
	04.03.2019	Galegos da Serra	Soil	–	–	–	–
13	04.03.2019	Sirarelhos	Cow	F	2008	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2015	Maronesa	VS3223
	04.03.2019	Sirarelhos	Cow	F	2002	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2012	Maronesa	VS3224
	04.03.2019	Sirarelhos	Cow	F	2008	Maronesa	VS3225
	04.03.2019	Sirarelhos	Cow	F	2004	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2001	Maronesa	VS3226
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	–
	04.03.2019	Sirarelhos	Water	–	–	–	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS3227
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS3228
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS3229
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
14	04.03.2019	Sirarelhos	Cow	M	2016	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2007	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2006	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2016	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2007	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	–
	04.03.2019	Sirarelhos	Soil	–	–	–	VS3230
	04.03.2019	Sirarelhos	Water	–	–	–	–
15	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–

	04.03.2019	Sirarelhos	Cow	F	2011	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2016	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	VS2331
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	VS2332
	04.03.2019	Sirarelhos	Cow	F	2004	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2012	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2005	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
	04.03.2019	Sirarelhos	Water	–	–	–	–
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–
16	04.03.2019	Sirarelhos	Cow	F	2008	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	VS2333
	04.03.2019	Sirarelhos	Cow	F	2010	Maronesa	VS2334
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2015	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2017	Maronesa	VS2335
	04.03.2019	Sirarelhos	Cow	F	2018	Maronesa	–
	04.03.2019	Sirarelhos	Water	–	–	–	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS2336
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS2337
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS2338
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS2339
	04.03.2019	Sirarelhos	Farmer	–	–	–	VS2340
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
17	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	VS2341
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2009	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2011	Maronesa	VS3242
	04.03.2019	Sirarelhos	Cow	F	2013	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2016	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2006	Maronesa	–
	04.03.2019	Sirarelhos	Cow	F	2006	Maronesa	–
	04.03.2019	Sirarelhos	Soil	–	–	–	–
18	04.03.2019	Sirarelhos	Farmer	–	–	–	–
	04.03.2019	Sirarelhos	Farmer	–	–	–	–
19	04.03.2019	Sirarelhos	Cow	F	2018	Crossbreed	–
	04.03.2019	Sirarelhos	Cow	M	2018	Holstein-Friesian	–
	12.03.2019	Galegos da Serra	Cow	F	2003	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2014	Maronesa	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
20	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
	12.03.2019	Galegos da Serra	Cow	F	2005	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2010	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2014	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2014	Maronesa	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	VS3243

21	12.03.2019	Galegos da Serra	Cow	F	2016	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2011	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2017	Maronesa	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
22	12.03.2019	Galegos da Serra	Cow	F	2005	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2013	Maronesa	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
23	12.03.2019	Galegos da Serra	Cow	F	2012	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2011	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2017	Maronesa	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
24	12.03.2019	Galegos da Serra	Cow	F	2015	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2010	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2015	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2008	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2009	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2010	Maronesa	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
25	12.03.2019	Galegos da Serra	Cow	F	2014	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2014	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2012	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2003	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2005	Maronesa	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
	12.03.2019	Galegos da Serra	Cow	F	2007	Maronesa	VS324
	12.03.2019	Galegos da Serra	Cow	F	2013	Maronesa	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
26	12.03.2019	Galegos da Serra	Cow	F	2004	Maronesa	–
	12.03.2019	Galegos da Serra	Cow	F	2013	Maronesa	–
	12.03.2019	Galegos da Serra	Soil	–	–	–	–
	12.03.2019	Galegos da Serra	Water	–	–	–	–
	12.03.2019	Galegos da Serra	Farmer	–	–	–	–
27	12.03.2019	Relva	Cow	F	2011	Maronesa	–
	12.03.2019	Relva	Water	–	–	–	–
	12.03.2019	Relva	Soil	–	–	–	–
	12.03.2019	Relva	Farmer	–	–	–	–
28	15.03.2019	Lordelo	Cow	F	2013	Crossbreed	–
	15.03.2019	Lordelo	Cow	F	2012	Crossbreed	–
	15.03.2019	Lordelo	Water	–	–	–	–
	15.03.2019	Lordelo	Soil	–	–	–	–
	15.03.2019	Lordelo	Farmer	–	–	–	–
29	15.03.2019	Lordelo	Cow	M	2017	Holstein-Friesian	–
	15.03.2019	Lordelo	Soil	–	–	–	–
	15.03.2019	Lordelo	Water	–	–	–	–
	15.03.2019	Lordelo	Cow	M	2017	Crossbreed	–
	15.03.2019	Lordelo	Soil	–	–	–	–
	15.03.2019	Lordelo	Farmer	–	–	–	–

	15.03.2019	Lordelo	Farmer	—	—	—	—
30	15.03.2019	Lordelo	Cow	F	2013	Crossbreed	—
	15.03.2019	Lordelo	Cow	F	2015	Crossbreed	—
	15.03.2019	Lordelo	Soil	—	—	—	—
	15.03.2019	Lordelo	Farmer	—	—	—	—
31	15.03.2019	Lordelo	Cow	F	2017	Maronesa	—
	15.03.2019	Lordelo	Water	—	—	—	—
	15.03.2019	Lordelo	Soil	—	—	—	—
	15.03.2019	Lordelo	Farmer	—	—	—	—
	15.03.2019	Lordelo	Farmer	—	—	—	—
32	18.03.2019	Lordelo	Cow	F	2012	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2014	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2014	Maronesa	—
	18.03.2019	Lordelo	Soil	—	—	—	—
	18.03.2019	Lordelo	Water	—	—	—	—
33	18.03.2019	Lordelo	Cow	F	2010	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2013	Maronesa	—
	18.03.2019	Lordelo	Soil	—	—	—	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Farmer	—	—	—	—
34	18.03.2019	Lordelo	Cow	F	2011	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2012	Maronesa	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Soil	—	—	—	—
35	18.03.2019	Lordelo	Cow	F	2015	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2014	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2016	Maronesa	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Soil	—	—	—	—
	18.03.2019	Lordelo	Farmer	—	—	—	—
36	18.03.2019	Lordelo	Cow	F	2010	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2011	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2013	Maronesa	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Soil	—	—	—	—
	18.03.2019	Lordelo	Farmer	—	—	—	—
37	18.03.2019	Lordelo	Cow	F	2009	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2011	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2008	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2011	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2008	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2013	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2009	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2010	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2015	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2012	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2014	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2013	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2007	Maronesa	—
	18.03.2019	Lordelo	Cow	M	2018	Maronesa	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Soil	—	—	—	—
38	18.03.2019	Lordelo	Cow	F	2011	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2009	Maronesa	—
	18.03.2019	Lordelo	Water	—	—	—	—
	18.03.2019	Lordelo	Soil	—	—	—	—
	18.03.2019	Lordelo	Cow	F	2014	Maronesa	—
	18.03.2019	Lordelo	Cow	F	2012	Maronesa	—

	18.03.2019	Lordelo	Cow	M	2016	Maronesa	–
	18.03.2019	Lordelo	Water	–	–	–	–
	18.03.2019	Lordelo	Soil	–	–	–	–
39	25.03.2019	Sapiões	Cow	F	2016	Maronesa	VS3245
	25.03.2019	Sapiões	Cow	F	2012	Maronesa	–
	25.03.2019	Sapiões	Cow	F	2014	Maronesa	VS3246
	25.03.2019	Sapiões	Cow	F	2007	Maronesa	VS3247
	25.03.2019	Sapiões	Cow	F	2015	Maronesa	VS3248
	25.03.2019	Sapiões	Farmer	–	–	–	–
	25.03.2019	Sapiões	Farmer	–	–	–	–
40	25.03.2019	Sapiões	Cow	F	2014	Maronesa	–
	25.03.2019	Sapiões	Farmer	–	–	–	–
41	25.03.2019	Sapiões	Cow	F	2013	Crossbreed	–
	25.03.2019	Sapiões	Cow	F	2011	Crossbreed	–
	25.03.2019	Sapiões	Soil	–	–	–	–
42	25.03.2019	Sapiões	Cow	F	2006	Maronesa	–
	25.03.2019	Sapiões	Cow	F	2009	Maronesa	–
	25.03.2019	Sapiões	Cow	F	2015	Crossbreed	–
	25.03.2019	Sapiões	Cow	F	2009	Holstein-Friesian	–
	25.03.2019	Sapiões	Cow	F	2014	Maronesa	VS3249
	25.03.2019	Sapiões	Water	–	–	–	–
	25.03.2019	Sapiões	Soil	–	–	–	–
	25.03.2019	Sapiões	Farmer	–	–	–	–
43	25.03.2019	Gulpilhares	Cow	F	2003	Maronesa	–
	25.03.2019	Gulpilhares	Water	–	–	–	–
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	–
44	25.03.2019	Gulpilhares	Cow	F	2015	Crossbreed	–
	25.03.2019	Gulpilhares	Cow	F	2013	Crossbreed	–
	25.03.2019	Gulpilhares	Cow	F	2000	Crossbreed	–
	25.03.2019	Gulpilhares	Water	–	–	–	–
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	–
45	25.03.2019	Gulpilhares	Cow	F	2013	Maronesa	–
	25.03.2019	Gulpilhares	Cow	F	2010	Maronesa	–
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	–
46	25.03.2019	Gulpilhares	Cow	F	2013	Holstein-Friesian	–
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	VS3250
47	25.03.2019	Gulpilhares	1056	F	2007	Holstein-Friesian	VS3251
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	VS3252
48	25.03.2019	Gulpilhares	Cow	F	2013	Holstein-Friesian	–
	25.03.2019	Quintelas	Cow	F	2011	Crossbreed	–
	25.03.2019	Gulpilhares	Water	–	–	–	–
	25.03.2019	Gulpilhares	Soil	–	–	–	–
	25.03.2019	Gulpilhares	Farmer	–	–	–	VS3253
	25.03.2019	Quintelas	Cow	F	2006	Maronesa	–
	25.03.2019	Quintelas	Cow	F	2007	Maronesa	–
49	25.03.2019	Quintelas	Farmer	–	–	–	VS3254
	26.03.2019	Mondrões	Cow	M	2018	Maronesa	–
	26.03.2019	Mondrões	Cow	F	2010	Maronesa	–
	26.03.2019	Mondrões	Cow	F	2015	Maronesa	VS3255

	26.03.2019	Mondrões	Cow	F	2013	Maronesa	VS3256
	26.03.2019	Mondrões	Cow	F	2015	Maronesa	–
	26.03.2019	Mondrões	Water	–	–	–	–
	26.03.2019	Mondrões	Soil	–	–	–	–
50	26.03.2019	Mondrões	Cow	F	2010	Maronesa	–
	26.03.2019	Mondrões	Farmer	–	–	–	–
	26.03.2019	Arrabães	Cow	F	2001	Maronesa	–
51	26.03.2019	Arrabães	Cow	F	2002	Maronesa	–
	26.03.2019	Arrabães	Water	–	–	–	–
	26.03.2019	Arrabães	Soil	–	–	–	–
	01.04.2019	Relva	Cow	F	2007	Maronesa	–
	01.04.2019	Relva	Cow	F	2010	Crossbreed	VS3257
	01.04.2019	Relva	Cow	F	2013	Maronesa	–
	01.04.2019	Relva	Cow	F	2015	Maronesa	–
	01.04.2019	Relva	Cow	F	2015	Crossbreed	–
	01.04.2019	Relva	Cow	F	2016	Crossbreed	–
	01.04.2019	Relva	Cow	F	2013	Crossbreed	VS3258
	01.04.2019	Relva	Cow	F	2015	Crossbreed	–
	01.04.2019	Relva	Cow	F	2008	Maronesa	–
52	01.04.2019	Relva	Cow	F	2012	Maronesa	–
	01.04.2019	Relva	Cow	F	2013	Maronesa	–
	01.04.2019	Relva	Cow	F	2017	Maronesa	–
	01.04.2019	Relva	Farmer	–	–	–	VS3259
	01.04.2019	Relva	Farmer	–	–	–	–
	01.04.2019	Relva	Farmer	–	–	–	–
	01.04.2019	Relva	Farmer	–	–	–	VS3260
	01.04.2019	Relva	Farmer	–	–	–	VS3261
	01.04.2019	Relva	Water	–	–	–	–
	01.04.2019	Relva	Soil	–	–	–	–
	01.04.2019	Borbela	Cow	F	2009	Crossbreed	–
53	01.04.2019	Borbela	Farmer	–	–	–	–
	01.04.2019	Borbela	Water	–	–	–	–
	01.04.2019	Borbela	Soil	–	–	–	–
	01.04.2019	Borbela	Cow	F	2004	Maronesa	–
54	01.04.2019	Borbela	Cow	F	2011	Maronesa	–
	01.04.2019	Borbela	Cow	F	2018	Maronesa	–
	01.04.2019	Borbela	Cow	F	2012	Maronesa	–
	01.04.2019	Borbela	Cow	F	2010	Crossbreed	–
	01.04.2019	Borbela	Cow	F	2003	Crossbreed	–
55	01.04.2019	Borbela	Cow	F	2007	Crossbreed	–
	01.04.2019	Borbela	Cow	F	2016	Crossbreed	–
	01.04.2019	Borbela	Water	–	–	–	VS3262
	01.04.2019	Borbela	Soil	–	–	–	–
	01.04.2019	Borbela	Cow	F	2013	Maronesa	–
56	01.04.2019	Borbela	Water	–	–	–	–
	01.04.2019	Borbela	Soil	–	–	–	–
	01.04.2019	Borbela	Farmer	–	–	–	VS3263
	02.04.2019	Agarez	Cow	F	2015	Maronesa	–
	02.04.2019	Agarez	Cow	F	2005	Maronesa	–
	02.04.2019	Agarez	Cow	F	2017	Maronesa	–
	02.04.2019	Agarez	Cow	F	2013	Maronesa	–
	02.04.2019	Agarez	Cow	F	2010	Maronesa	–
57	02.04.2019	Agarez	Cow	F	2007	Maronesa	–
	02.04.2019	Agarez	Cow	M	2018	Maronesa	–
	02.04.2019	Agarez	Cow	F	2018	Maronesa	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	–

58	02.04.2019	Agarez	Cow	F	2014	Maronesa	–
	02.04.2019	Agarez	Cow	F	2010	Maronesa	–
	02.04.2019	Agarez	Cow	F	2015	Maronesa	–
	02.04.2019	Agarez	Cow	F	2014	Maronesa	–
	02.04.2019	Agarez	Cow	F	2015	Maronesa	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	VS3264
59	02.04.2019	Agarez	Cow	F	2017	Maronesa	–
	02.04.2019	Agarez	Cow	F	2018	Crossbreed	–
	02.04.2019	Agarez	Cow	F	2018	Crossbreed	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	–
60	02.04.2019	Agarez	Cow	M	2018	Crossbreed	VS3265
	02.04.2019	Agarez	Cow	M	2018	Crossbreed	VS3266 and VS3267
	02.04.2019	Agarez	Cow	F	2018	Holstein-Friesian	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
61	02.04.2019	Agarez	Cow	F	2015	Maronesa	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
62	02.04.2019	Agarez	Cow	F	2015	Maronesa	–
	02.04.2019	Agarez	Cow	F	2016	Maronesa	–
	02.04.2019	Agarez	Cow	F	2010	Maronesa	VS3268
	02.04.2019	Agarez	Cow	F	2011	Maronesa	VS3269
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	VS3270
	02.04.2019	Agarez	Farmer	–	–	–	VS3271
63	02.04.2019	Agarez	Cow	M	2017	Maronesa	VS3272
	02.04.2019	Agarez	Cow	M	2017	Maronesa	–
	02.04.2019	Agarez	Cow	F	2017	Maronesa	–
	02.04.2019	Agarez	Cow	F	2017	Maronesa	–
	02.04.2019	Agarez	Cow	F	2011	Maronesa	–
	02.04.2019	Agarez	Cow	F	2004	Maronesa	VS3273
	02.04.2019	Agarez	Cow	F	2008	Maronesa	–
	02.04.2019	Agarez	Cow	F	2016	Maronesa	–
	02.04.2019	Agarez	Cow	F	2014	Maronesa	–
	02.04.2019	Agarez	Cow	F	2016	Maronesa	–
	02.04.2019	Agarez	Cow	F	2012	Maronesa	–
	02.04.2019	Agarez	Cow	F	2009	Maronesa	–
	02.04.2019	Agarez	Cow	F	2016	Maronesa	–
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	–
64	02.04.2019	Agarez	Cow	F	2015	Crossbreed	VS3274
	02.04.2019	Agarez	Water	–	–	–	–
	02.04.2019	Agarez	Soil	–	–	–	–
	02.04.2019	Agarez	Farmer	–	–	–	VS3275



**Table S2.** Primer pairs used for molecular typing and detection of antimicrobial resistance genes in *S. aureus* strains.

Gene (Am- plicon Size)	Sequence (5' > 3')	Conditions	Reference
		94 °C 5 min 1 cycle	
<i>mecA</i> (527 bp)	F: GGGATCATAGCGTCATTATTC R: AACGATTGTGACACGATAGCC	94 °C 30 sec 55 °C 30 sec 30 cycles 72 °C 1 min	[77]
		72 °C 10 min 1 cycle 94 °C 3 min 1 cycle	
<i>blaZ</i> (772 bp)	F: CAGTTCACATGCCAAAGAG R: TACACTCTTGGCGGTTTC	94 °C 1 min 50 °C 1 min 30 cycles 72 °C 2 min	[78]
<i>ermA</i> (645 bp)	F: TCTAAAAAGCATGTAAAAGAA R: CTTCGATAGTTTATTAATATTAG	72 °C 5 min 1 cycle 93 °C 3 min 1 cycle	[79]
<i>ermB</i> (639 bp)	F: GAAAAGTACTCAACCAAATA R: AGTAACGGTACTTAAATTGTTTA	93 °C 1 min 52 °C 1 min 35 cycles 72 °C 1 min	[37]
<i>ermC</i> (642 bp)	F: TCAAAACATAATATAGATAAA R: GCTAATATTGTTTAAATCGTCAAT		[79]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>ermT</i> (200 bp)	F: CCGCCATTGAAATAGATCCT R: TTCTGTAGCTGTGCTTTCAAAAA	94 °C 1 min 55 °C 1 min 30 cycles 72 °C 1 min	[80]
		72 °C 5 min 1 cycle 95 °C 3 min 1 cycle	
<i>msr(A/B)</i> (399 bp)	F: GCAAATGGTGTAGGTAAGACAACT R: ATCATGTGATGTAAACAAAAT	93 °C 30 sec 55 °C 2 min 35 cycles 72 °C 1,5 min	[81]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>mph(C)</i> (900 bp)	F: ATGACTCGACATAATGAAAT R: CTACTCTTTCATACCTAACTC	94 °C 1 min 45 °C 1 min 30 cycles 72 °C 1 min	[78]
		72 °C 5 min 1 cycle 94 °C 2 min 1 cycle	
<i>lnu(A)</i> (323 bp)	F: GGTGGCTGGGGGGTAGATGTATTAAGTGG R: GCTTCTTTTGAAATACATGGTATTTTTTCGATC	94 °C 30 sec 57 °C 30 sec 30 cycles 72 °C 1 min	[82]
		72 °C 10 min 1 cycle 94 °C 5 min 1 cycle	
<i>lnu(B)</i> (944 bp)	F: CCTACCTATTGTTTGTGGAA R: ATAACGTTACTCTCCTATTC	94 °C 45 sec 54 °C 45 sec 30 cycles 72 °C 1 min	[83]

		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>vga(A)</i> (1264 bp)	F: AGTGGTGGTGAAGTAACACG R: GGTTC AATACTCAATCGACTGAG	94 °C 1 min 56 °C 1 min 30 cycles 72 °C 1 min	[84]
		72 °C 5 min 1 cycle 94 °C 1 min 1 cycle	
<i>vga(B)</i> (576 pb)	F: TGACAATATGAGTGGTGGTG R: GCGACCATGAAATTGCTCTC	94 °C 1 min 55 °C 2 min 30 cycles 72 °C 2 min	[85]
		72 °C 10 min 1 cycle 94 °C 3 min 1 cycle	[86]
<i>tetK</i> (697 bp)	F: TTAGGTGAAGGGTTAGGTCC R: GCAAAC TCATTCCAGAAGCA	94 °C 1 min 54 °C 1 min 30 cycles 72 °C 1 min	[86]
<i>tetM</i> (576 bp)	F: GTTAAATAGTGTCTTGGAG R: CTAAGATATGGCTCTAACAA	72 °C 5 min 1 cycle 94 °C 1 min 1 cycle	[86]
<i>tetO</i> (615 bp)	F: GATGGCATA CAGGCACAGAC R: CAATATCACCAGAGCAGGCT	94 °C 1 min 50 °C 1 min 30 cycles 72 °C 1 min	[86]
<i>tetL</i> (456 bp)	F: CATTTGGTCTTATTGGATCG R: ATTACACTTCCGATTTCGG	72 °C 10 min 1 cycle 94 °C 5 min 1 cycle	
<i>aac(6')-Ie-aph(2'')-Ia</i> (220 bp)	F: CCAAGAGCAATAAGGGCATA R: CACTATCATAACCACTACCG	94 °C 30 sec 60 °C 45 sec 30 cycles 72 °C 2 min	[87]
		72 °C 7 min 1 cycle 94 °C 3 min 1 cycle	
<i>ant(4')-Ia</i> (160 bp)	F: GCAAGGACCGACAACATTTC R: TGGCACAGATGGTCATAACC	94 °C 30 sec 60 °C 45 sec 30 cycles 72 °C 2 min	[87]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>str</i> (646 bp)	F: TATTGCTCTCGAGGGTTC R: CTTTCTATATCCATT CATCTC	94 °C 1 min 50 °C 1 min 30 cycles 72 °C 1 min	[78]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>aph(3')-III</i> (292 bp)	F: GCCGATGTGGATTGCGAAAA R: GCTTGATCCCCAGTAAGTCA	94 °C 30 sec 60 °C 45 sec 30 cycles 72 °C 2 min	[87]
		72 °C 5 min 1 cycle	

		94 °C 1 min 1 cycle	
<i>fexA</i> (1272 bp)	F: GTACTTGTAGGTGCAATTACGGCTGA R: CGCATCTGAGTAGGACATAGCGTC	94 °C 1 min 48 °C 2 min 34 cycles 72 °C 3 min	[88]
		72 °C 7 min 1 cycle 94 °C 7min min 1 cycle	
<i>fexB</i> (816 bp)	F: TTCCCACTATTGGTGAAAGGAT R: GCAATTCCTTTTATGGACGTT	94 °C 1 min 55 °C 1 min 30 cycles 72 °C 1 min	[89]
<i>cat<sub>pC194</sub></i> (570 bp)	F: CGACTTTTAGTATAACCACAGA R: GCCAGTCATTAGGCCTAT	72 °C 10 min 1 cycle 94 °C 3 min 1 cycle	[78]
<i>cat<sub>pC221</sub></i> (434 bp)	F: ATTTATGCAATTATGGAAGTTG R: TGAAGCATGGTAACCATCAC	94 °C 1 min 50 °C 1 min 30 cycles 72 °C 1 min	[78]
<i>cat<sub>pC223</sub></i> (283 bp)	F: GAATCAAATGCTAGTTTTAACTC R: ACATGGTAACCATCACATAC		[78]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>cfr</i> (746 bp)	F: TGAAGTATAAAGCAGGTTGGGAGTCA R: ACCATATAATTGACCACAAGCAGC	94 °C 1 min 56 °C 1 min 30 cycles 72 °C 1 min	[88]
<i>fusB</i> (431 bp)	F: CTATAATGATATTAATGAGATTTTGG R: TTTTACATATTGACCATCCGAATTGG	72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>fusC</i> (332 bp)	F: TTAAAGAAAAAGATATTGATATCTCGG R: TTTACAGAATCCTTTTACTTTATTGG	94 °C 30 sec 57 °C 30 sec 25 cycles 72 °C 45 sec	[90]
		72 °C 7 min 1 cycle 94 °C 7 min 1 cycle	
<i>fusD</i> (456 bp)	F: AATTCGGTCAACGATCCC R: GCCATCATTGCCAGTACG	94 °C 30 sec 57 °C 30 sec 30 cycles 72 °C 30 sec	[91]
<i>dfrA</i> (374 bp)	F: CCTTGGCACTTACCAAATG R: CTGAAGATTGCGACTTCCC	72 °C 10 min 1 cycle 94 °C 3 min 1 cycle	
<i>dfrD</i> (582 bp)	F: TTCTTTAATTGTTGCGATGG R: TTAACGAATTCTCTCATATATATG	94 °C 1 min 50 °C 1 min 30 cycles 72 °C 1 min	[78]
		72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	
<i>dfrG</i> (323 bp)	F: TCGGAAGAGCCTTACCTGACAGAA R: CCCTTTTTGGGCAAATACCTCATTCCA	94 °C 1 min 58 °C 1 min 30 cycles 72 °C 1 min	[80]
<i>dfrK</i>	F: GAGAATCCCAGAGGATTGGG	72 °C 5 min 1 cycle 94 °C 3 min 1 cycle	

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(423 bp)

R: CAAGAAGCTTTTCGCTCATAAA

94 °C 1 min

56 °C 1 min 30 cycles

72 °C 1 min

72 °C 5 min 1 cycle

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