Semi-3

Samples of 10g wool mordanted at 90°C and dyed with Cortinarius semisanguineus caps at pH 3
weight of caps/weight of wool = 0.8. % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C				Dyeing 90°C-100°C	Colour
Al+Ci	Alum	10%	Citric acid	10%	pH=3	dark bright red
Al+Vin	Alum	10%	Cream of tartar	10%	pH=3	dark bright red
Al	Alum	10%			pH=3	dark bright red
Tn+Ci	Tin	2%	Citric acid	10%	pH=3	bright red
Tn+Vin	Tin	2%	Cream of tartar	10%	pH=3	bright red
Tn	Tin	2%			pH=3	weak red

Conclusion: Mordanting with Alum and Tin using citric acid or cream of tartar are almost identical but mordanting with Tin gives a brighter red. Mordanting with Tin without lowering pH gives a less brighter red. Compare final colours with **Semi-7** and **Semi-9.**

Semi-7

Samples of 10g wool mordanted at 90°C and dyed with Cortinarius semisanguineus caps at pH 7.
weight of caps/weight of wool = 0.8. % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C				Dyeing 90°C-100°C	Colour
Al+Ci	Alum	10%	Citric acid	10%	pH=7	dark bright red
Al+Vin	Alum	10%	Cream of tartar	10%	pH=7	darker bright red
Al	Alum	10%			pH=7	dark bright red
Tn+Ci	Tin	2%	Citric acid	10%	pH=7	bright red
Tn+Vin	Tin	2%	Cream of tartar	10%	pH=7	bright red
Tn	Tin	2%			pH=7	weak red

Conclusion: Mordanting using citric acid or cream of tartar give similar results for Al and Tin, but the colours using Tin gives a less dark red. Mordanting with Tin without lowering pH by adding citric acid or cream of tartar gives a much weaker red. Note that using alum and cream of tartar gives a slightly darker colour than using alum and citric acid.
Compare colours with **Semi-3** and **Semi-9.**

Semi-9

Samples of 10g wool mordanted at 90°C and dyed with Cortinarius semisanguineus caps
weight of caps/weight of wool = 0.8. % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C				Dyeing 90°C-100°C	Colour
Al+Ci	Alum	10%	Citric acid	10%	pH=9	dark bright red (bluish)
Al+Vin	Alum	10%	Cream of tartar	10%	pH=9	dark bright red (bluish)
Al	Alum	10%			pH=9	dark bright red (bluish)
Tn+Ci	Tin	2%	Citric acid	10%	pH=9	bright red
Tn+Vin	Tin	2%	Cream of tartar	10%	pH=9	bright red
Tn	Tin	2%			pH=9	weak red

Conclusion: Mordanting with citric acid or cream of tartar give similar results for Al and Tin.
but mordanting with Tin gives a less dark red. Mordanting with Tin without lowering pH by adding Citric acid or Cream of tartar gives a much weaker red. Note that the colour is slightly more bluish when samples mordanted with Al are dyed at pH 9, than corresponding samples in **Semi-3** dyed at pH 3 and in **Semi-7** dyed at pH 7.

Sch-3

Samples of 10g wool mordanted at 90°C and dyed at 90°C with Phaeolus schweinitzii at pH 3.
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C			Dyeing 90°C-100°C	Colour
Al+Vin	Alum	10%	Cream of tartar 10%	pH=3	yellow
Tn+Vin	Tin	2%	Cream of tartar 10%	pH=3	orange

Conclusion: Mordanting with Alum and Tin and dyeing with pH=3 gives approximately the same results as dyeing with pH=7. Compare samples with main label **Sch-7**

Sch-7

Samples of 10g wool mordanted at 90°C and dyed at 90°C with Phaeolus schweinitzii at pH 7.
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C				Dyeing 90°C-100°C	Colour
Al+Ci	Alum	10%	Citric acid	10%	pH=7	yellow (slightly weaker)
Al+Vin	Alum	10%	Cream of tartar	10%	pH=7	yellow
Al	Alum	10%			pH=7	yellow
Tn+Ci	Tin	2%	Citric acid	10%	pH=7	orange dark
Tn+Vin	Tin	2%	Cream of tartar	10%	pH=7	orange
Tn	Tin	2%			pH=7	yellow

Conclusion: Citric acid and Cream of tartar is added at mordanting to lower pH.
Mordanting with Alum gives same yellow colour irrespective of mordanting pH.
Mordanting with Tin gives yellow colour without lowering mordanting pH and two slightly different shades of orange when lowering pH with Citric acid or Cream of tartar. Mordanting with Alum using citric acid gives a slightly weaker colour.

Sch-9

Samples of 10g wool mordanted at 90ºC and dyed at 90ºC with Phaeolus schweinitzii at pH 9.
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Id:	Mordanting 90ºC-100ºC			Dyeing 90ºC-100ºC	Colour
Al+Vin	Alum	10%	Cream of tartar 10%	pH=9	yellow
Tn+Vin	Tin	2%	Cream of tartar 10%	pH=9	orange

Conclusion: Mordanting with Tin and dyeing with pH=9 gives a bright yellow different from the bright yellow obtained when dyeing with pH=7.
Compare samples with main label **Sch-7.**

Pax-3

Samples of 10g wool mordanted at 90°C and dyed with Paxillus atrotomentosus at pH 3
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C		Dyeing 90°C-100°C	Colour
Al+Vin	Alum 10%	Cream of tartar 10%	pH=3	greygreen
Tn+Vin	Tin 2%	Cream of tartar 10%	pH=3	green

Conclusion: Lowering pH during dyeing gives only small changes
compared to similar mordanted samples in **Pax-7** dyed at pH=7.

Pax-7

Samples of 10g wool mordanted at 90°C and dyed with Paxillus atrotomentosus at pH 7.
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C				Dyeing 90°C-100°C	Colour
Al+Ci	Alum	10%	Citric acid	10%	pH=7	greygreen dark
Al+Vin	Alum	10%	Cream of tartar	10%	pH=7	greygreen
Al	Alum	10%			pH=7	greygreen light
Tn+Ci	Tin	2%	Citric acid	10%	pH=7	bluegreen dark
Tn+Vin	Tin	2%	Cream of tartar	10%	pH=7	green
Tn	Tin	2%			pH=7	green light

Conclusion: In mordanting with Alum and Tin significant colour changes are observed when citric acid or cream of tartar is added to decrease pH during mordanting.
Larger color differences in mordanting with Alum and Tin are are seen when pH is not lowered during mordanting.
Compare samples with **Pax-3** samples dyed at pH 3 and **Pax-9** samples dyes at pH 9**.**

Pax-9

Samples of 10g wool mordanted at 90°C and dyed with Paxillus atrotomentosus at pH = 9.
weight of dried fungi/weight of wool = 1 % = % o.w.f. Tin is stannous chloride.

Sample id:	Mordanting 90°C-100°C			Dyeing 90°C-100°C	Colour
Al+Vin	Alum	10%	Cream of tartar 10%	pH=9	greygreen
Tn+Vin	Tin	2%	Cream of tartar 10%	pH=9	green

Conclusion: Raising pH to 9 during dyeing gives much weaker colours compared to using pH=7 and pH=3.
Compare samples with main labels **Pax-7** and **Pax-3.**

Semi-A

Wool mordanted 24 hours at room temperature and heat dyed with Cortinarius semisanguineus caps without changing mordanting pH by addition of Citric acid or Cream of tartar.
Weight of caps/weight of wool = 1.0

160504-Al-a, 160504-Al-b and 160504-Al-c are 10g wool samples mordanted successively for 24 hours in the same 2% o.w.f (on-weight-fabric) Alum bath. at 25°C.

Sample id:	Mordanting 25°C			Dyeing 90°C-100°C	Colour
160504-Al-a	Alum	2% first bath	pH=5.5	pH=6.5	red
160504-Al-c	Alum	2% third bath	pH=5.5	pH=6.5	red

160504-Sn-a, 160504-Sn-b and 160504-Sn-c are 10g wool samples mordanted successively for 24 hours in the same 1% o.w.f. Tin (stannous chloride) bath.

Sample id:	Mordanting 25°C			Dyeing 90°C-100°C	Colour
160504-Sn-a	Tin	1% first bath	pH=5.5	pH=6.5	red
160504-Sn-c	Tin	1% third bath	pH=5.5	pH=6.5	red

Cold Mordanting for 24 hours without lowering mordanting pH works, but the result is without significant colour difference between Alum and Tin.

Conclusion: Cold mordanting without lowering pH is not very efficient.

Pax-B

Wool mordanted 24 hours at room temperature and heat dyed with Paxillus atrotomentosus

160504-Al-a, 160504-Al-b and 160504-Al-c are 10g wool samples mordanted successively for 24 hours in the same 2% o.w.f (on-weight-fabric) Alum bath. at 25°C.

Sample id:	Mordanting 25°C		Dyeing 90°C-100°C	Color
160504-Al-b	Alum 20% first bath	pH=5.5	pH=6.5	graygreen

160504-Sn-a, 160504-Sn-b and 160504-Sn-c are 10g wool samples mordanted successively for 24 hours in the same 1% o.w.f. Tin is stannous chloride.

Id:	Mordanting 25°C		Dyeing 90°C-100°C	Color
160504-Sn-b	Tin 2% first bath	pH=5.5	pH=6.5	graygreen

Cold Mordanting for 24 hours without lowering mordanting pH works, but the result is without significant color difference between Alum and Tin.

Conclusion: Mordanting at room temperature without lowering pH is not very efficient. Mordanting at lower pH will probably work better. Compare samples cold mordanted at low pH and dyed with C.semisanguineus having main label **Semi-cold-1.**

Semi-time

Samples of 10g wool mordanted at 90°C and dyed in a second bath with
Cortinarius semisanguineus caps. Mordanting is with Alum 10% . Time in dye bath is varied.
weight of caps/weight of wool = 0.8. % = % o.w.f. Time in colour bath is varied.
Tin is stannous chloride. 15min+vask was laundered with SDS (Sulfo pH=7) after dyeing.

Sample id:	Mordanting 90°C-100°C			Dyeing 90°C-100°C	Colour
15min	Alum	10%	Cream of tartar 10%	pH=6.5	weakest red
30min	Alum	10%	Cream of tartar 10%	pH=6.5	weaker red
45min	Alum	10%	Cream of tartar 10%	pH=6.5	red
60min	Alum	10%	Cream of tartar 10%	pH=6.5	red
15min+vask	Alum	10%	Cream of tartar 10%	pH=6.5	red

Conclusion: Colours are almost identical after dyeing more than 30 min.
Most dye attach to wool after 15 minutes and and the result is stable toward laundering in SDS.

Semi-Cold-1

Wool mordanted 24 hours at room temperature and heat dyed with Cortinarius semisanguineus caps
weight of caps/weight of wool = 1.0. % = o.w.f (on-weight-fabric)
Al = alum. Tin = stannous chloride. Vin = cream of tartar. Ci = citric acid

Sample id:	Mordanting 25°C 24hours	Dyeing 90°C-100°C 1hour	Colour
semi 16.08.04 cold Al 1:	Al 20% Vin 15% pH=2.56	pH=4.08	red
semi 16.08.04 cold Al 2:	Al 20% Ci 15% pH=2.07	pH=4.08	red
semi 16.08.04 cold Sn 3:	Tin 2% Ci 15% pH=2.12	pH=4.08	bright red
semi 16.08.04 cold Sn 4:	Tin 1% Ci 15% pH=2.11	pH=4.08	bright red

Conclusion: Cold mordanting with heat dyeing works as well as mordanting at 90°C.
Decreasing Tin to 1% works just as well as standard recipes with 2% Tin.

Semi-Cold-2

Wool mordanted 24 hours at room temperature and dyed at 90°C or at room temperature
with Cortinarius semisanguineus caps
weight of caps/weight of wool = 1.0. % = o.w.f (on-weight-fabric)
Al = alum. Tin = stannous chloride. Vin = cream of tartar. Ci = citric acid

Sample id:	Mordanting	Dyeing	Colour
	25°C 24hours	90°C-100°C 1hour	
semi 16.08.17 cold Tn 1:	Tin 1% Ci 15% pH=2.56	pH=4.08	red
semi 16.08.17 cold Tn 2:	Tin 0.5% Ci 15% pH=2.07	pH=4.08	red
		25°C 24hours	
semi 16.08.17 cold Tn 3:	Tin 2% Ci 15% pH=2.12	pH=4.08	light red

Conclusion: Cold mordanting and standard warm dyeing works with lowered concentration of Tin.
Cold mordanting and cold dyeing change the final color.

Semi-A

Wool mordanted 24 hours at room temperature and heat dyed with Cortinarius semisanguineus caps without changing mordanting pH by addition of Citric acid or Cream of tartar.
Weight of caps/weight of wool = 1.0

160504-Al-a, 160504-Al-b and 160504-Al-c are 10g wool samples mordanted successively for 24 hours in the same 2% o.w.f (on-weight-fabric) Alum bath. at 25°C.

Sample id:	Mordanting 25°C			Dyeing 90°C-100°C	Colour
160504-Al-a	Alum	2% first bath	pH=5.5	pH=6.5	red
160504-Al-c	Alum	2% third bath	pH=5.5	pH=6.5	red

160504-Sn-a, 160504-Sn-b and 160504-Sn-c are 10g wool samples mordanted successively for 24 hours in the same 1% o.w.f. Tin (stannous chloride) bath.

Sample id:	Mordanting 25°C			Dyeing 90°C-100°C	Colour
160504-Sn-a	Tin	1% first bath	pH=5.5	pH=6.5	red
160504-Sn-c	Tin	1% third bath	pH=5.5	pH=6.5	red

Cold Mordanting for 24 hours without lowering mordanting pH works, but the result is without significant colour difference between Alum and Tin.

Conclusion: Cold mordanting without lowering pH is not very efficient.

Pax-B

Wool mordanted 24 hours at room temperature and heat dyed with Paxillus atrotomentosus

160504-Al-a, 160504-Al-b and 160504-Al-c are 10g wool samples mordanted successively for 24 hours in the same 2% o.w.f (on-weight-fabric) Alum bath. at 25°C.

Sample id:	Mordanting 25°C		Dyeing 90°C-100°C	Color
160504-Al-b	Alum 20% first bath	pH=5.5	pH=6.5	graygreen

160504-Sn-a, 160504-Sn-b and 160504-Sn-c are 10g wool samples mordanted successively for 24 hours in the same 1% o.w.f. Tin is stannous chloride.

Id:	Mordanting 25°C		Dyeing 90°C-100°C	Color
160504-Sn-b	Tin 2% first bath	pH=5.5	pH=6.5	graygreen

Cold Mordanting for 24 hours without lowering mordanting pH works, but the result is without significant color difference between Alum and Tin.

Conclusion: Mordanting at room temperature without lowering pH is not very efficient. Mordanting at lower pH will probably work better. Compare samples cold mordanted at low pH and dyed with C.semisanguineus having main label **Semi-cold-1.**