



Overview upon discolorations caused by heat treatment applied to different assortments of black alder

Emilia-Adela Salca

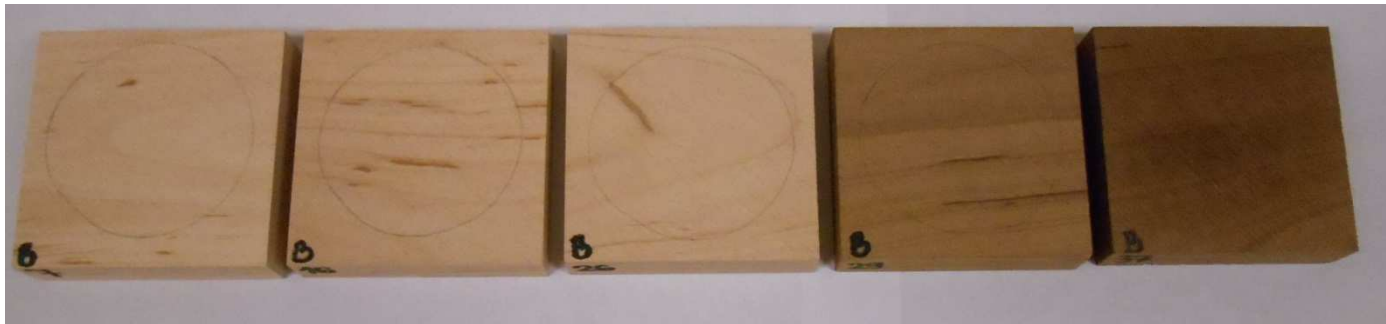
Transilvania University of Brasov, Romania

emilia.salca@unitbv.ro

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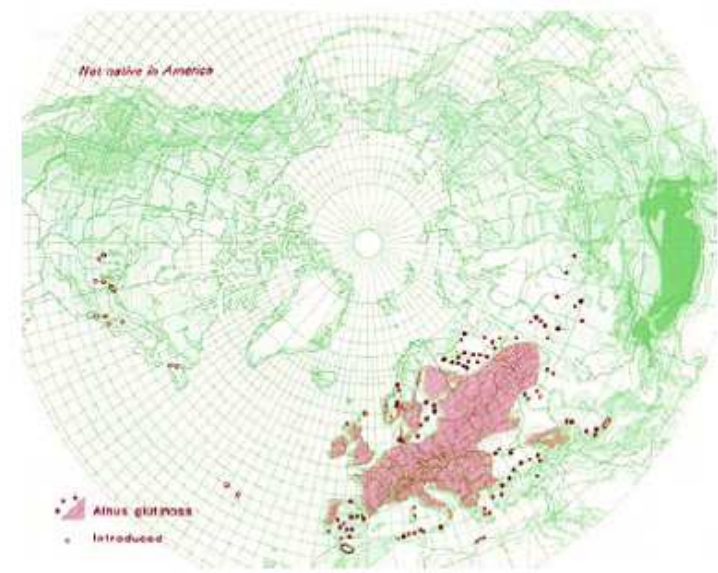
Objective

- The objective of the present work was to evaluate and compare the progress of discolorations appeared on surfaces of different assortments of black alder under heat exposure.



Alnus glutinosa

- Few data regarding the thermal modification of wood samples from black alder may be found in the specialty literature.
- In Romania few alluvial forests with *Alnus glutinosa* may be found (4000 ha).



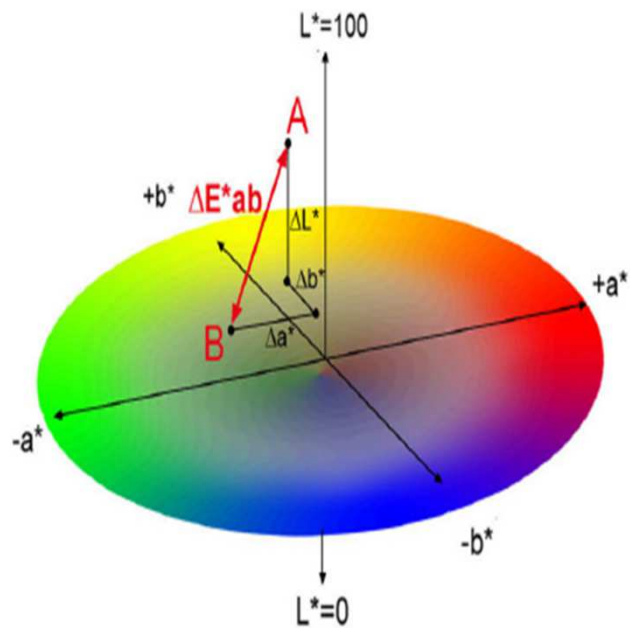
Natural distribution of *Alnus glutinosa*

Material and method

- Defect free samples of 70 x 70 x 16 mm
- Five groups each of five samples (1 as control)
- Application of heat treatment in a laboratory oven
 - at two temperature levels: 120°C; 190°C
 - for two span times: 3 and 6h

Material and method

- Chroma Meter Konica Minolta CR 410 device
- ISO 7724-2 standard, CIE Lab coordinates

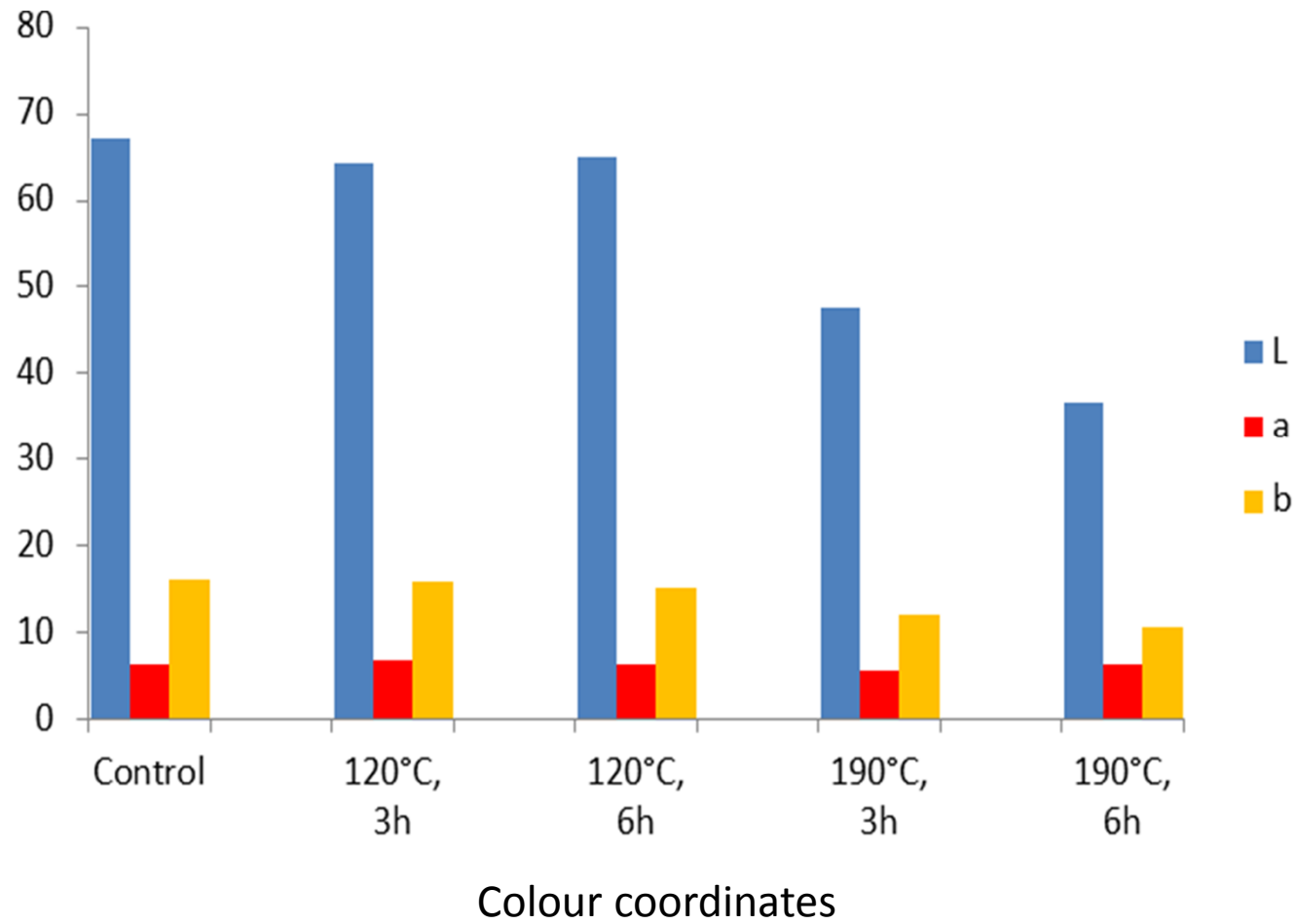


CIE Lab colour space




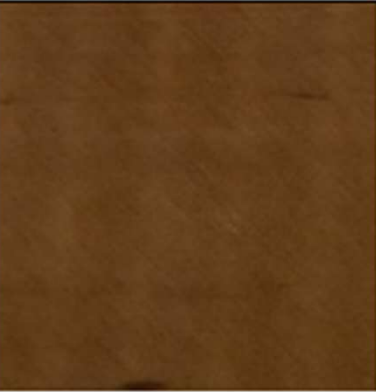


CR 410 device

Results

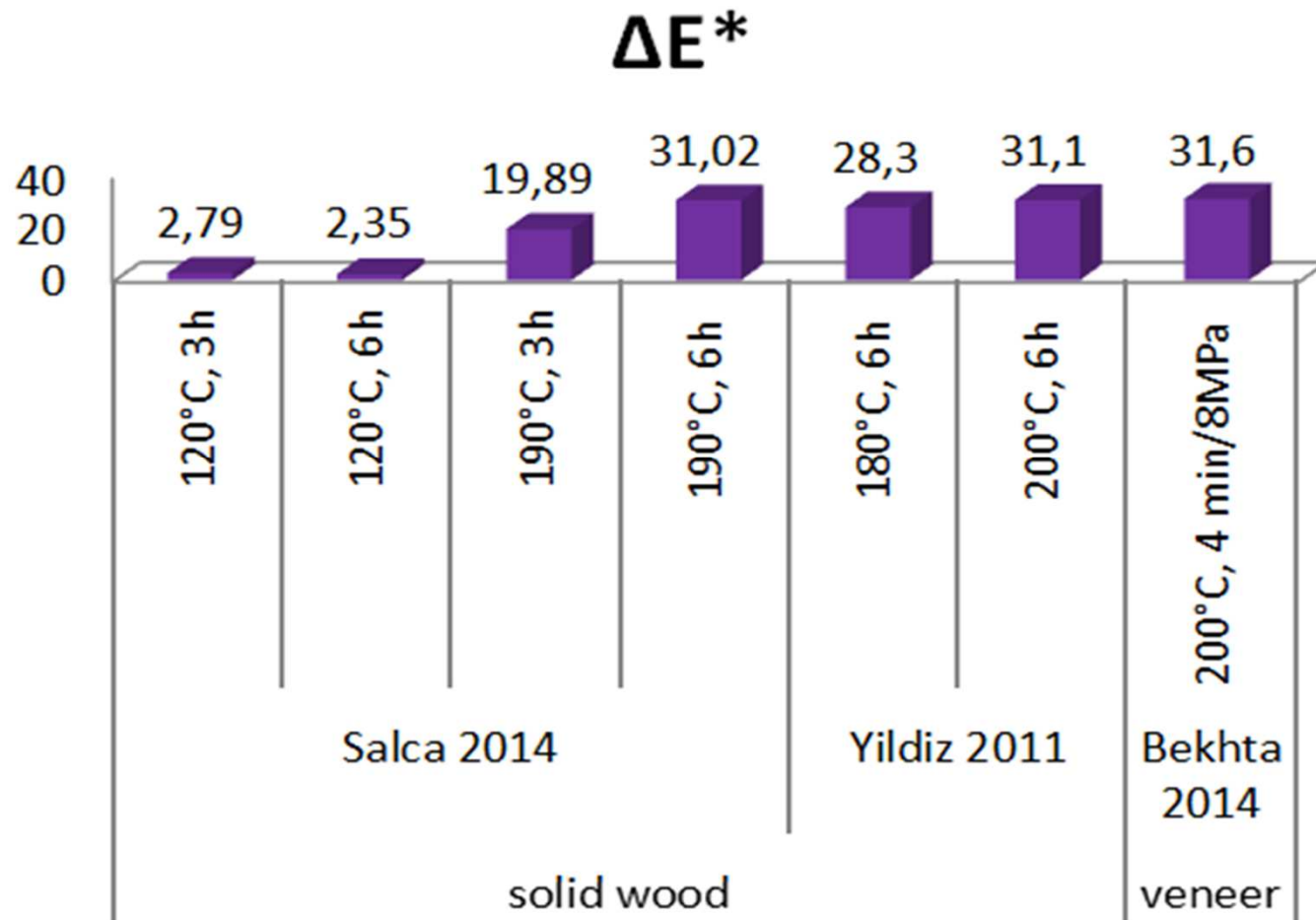


Results

			
120°C for 3h	120°C for 6h	190°C for 3h	190°C for 6h
$L_{\max}^* = 69,67$ $a_{\max}^* = 7,46$ $b_{\max}^* = 16,26$	$L_{\max}^* = 67,69$ $a_{\max}^* = 7,49$ $b_{\max}^* = 15,64$	$L_{\max}^* = 50,69$ $a_{\max}^* = 5,89$ $b_{\max}^* = 13,49$	$L_{\max}^* = 39,37$ $a_{\max}^* = 6,41$ $b_{\max}^* = 11,56$

Visual appearance of black alder wood

Results



Total colour changes

Conclusions

- The application of heat treatment could enhance the use of black alder wood for high value product.
- Apart of its specific orange discoloration when freshly cut, black alder wood under heat treatment gets an attractive dark colour which allows its use in a wide variety of applications by replacing tropical wood species or in restoration art works.

Thank you for your attention!

