

Evaluation of surface roughness of *Pinus* ssp. wood with three types of finish and exposed to accelerated aging.

Patrícia Soares Bilhalva dos SANTOS¹; Silvia H. Fuentes da SILVA¹; Roberto Lessa PEREIRA²; Taline Rodrigues MATTOSO²;

Darci Alberto GATTO²; Jalel LABIDI¹.

¹ Environmental and Chemical Engineering Department, University of the Basque Country, Plaza de Europa 1, 20018, San Sebastian, Spain. E-mail: patricia.bilhalva@hotmail.com

²Center Engineering, Wood Industrial Engineering, Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil.

INTRODUCTION

Wooden service life may vary depending the effort and how many time that the wood is subjected in addition to environmental exposure conditions. Technological use of wood is largely related to their properties and especially to anisotropic and hygroscopic characteristics.

The aim of this work was to evaluate the roughness of *Pinus* ssp. treated with white paint (spray and liquid) and varnish and exposed to accelerated weathering chamber over the exposure time and compared to the untreated wood.

MATERIALS AND METHODS

The *Pinus* wood, were overthrow from homogeneous plantations of Rio Grande do Sul state, in southern Brazil.

The planks were dried in climatic chamber until constant weight. 15 bodies of the test piece of dimensions 150 x 95 x 25 mm were obtained. 5 samples were treated with Spray Prime bright white colour (Finish 1), ink Synthetic enamel in bright white colour (Finish 2) and the varnish Nautical premium Poliulac (Finish 3). All coating were applied according the manufacturer's guidelines and dried for 72 hours before being subjected to accelerated weathering in chamber Model Bass - Spray-UUV, according to standard ASTM G 154 (Figure 1). The equipment of roughness used was digital Homis, model 899 with diamond tip, which analyzed the Ra parameter (microns).

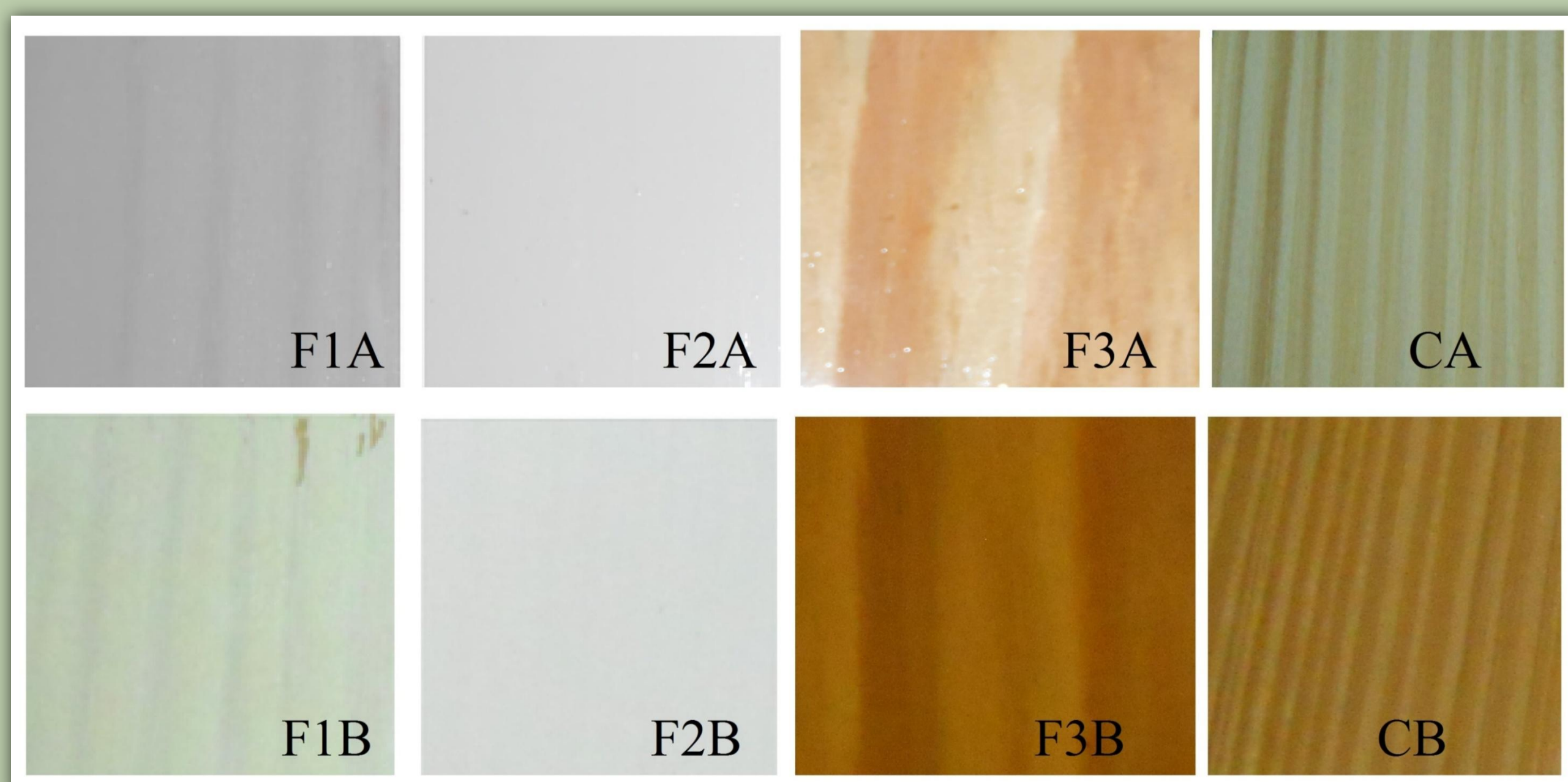


Figure 1: Changes of Brazilian *Pinus* wood exposed to accelerated aging with Spray Paint bright white colour (F1), ink Synthetic enamel in bright white colour (F2) and the varnish Nautical premium (F3) and wood control (C), the letters (A) and (B) are the time of 0 and 60 hours respectively.

RESULTS AND DISCUSSION

As shown in Figure 2, treatment (applying finish) decreased the roughness of wood. The use of finishes allows homogenization of the surface of the wood by reducing the variation of surface roughness. When the surfaces were exposed to UV light the average roughness (Ra) increased independently of the coating system applied. The finish 3 showed the best performance, keeping constant roughness over time of exposure to weathering, while for the other treatments, the roughness increased over time of exposure to accelerated weathering.

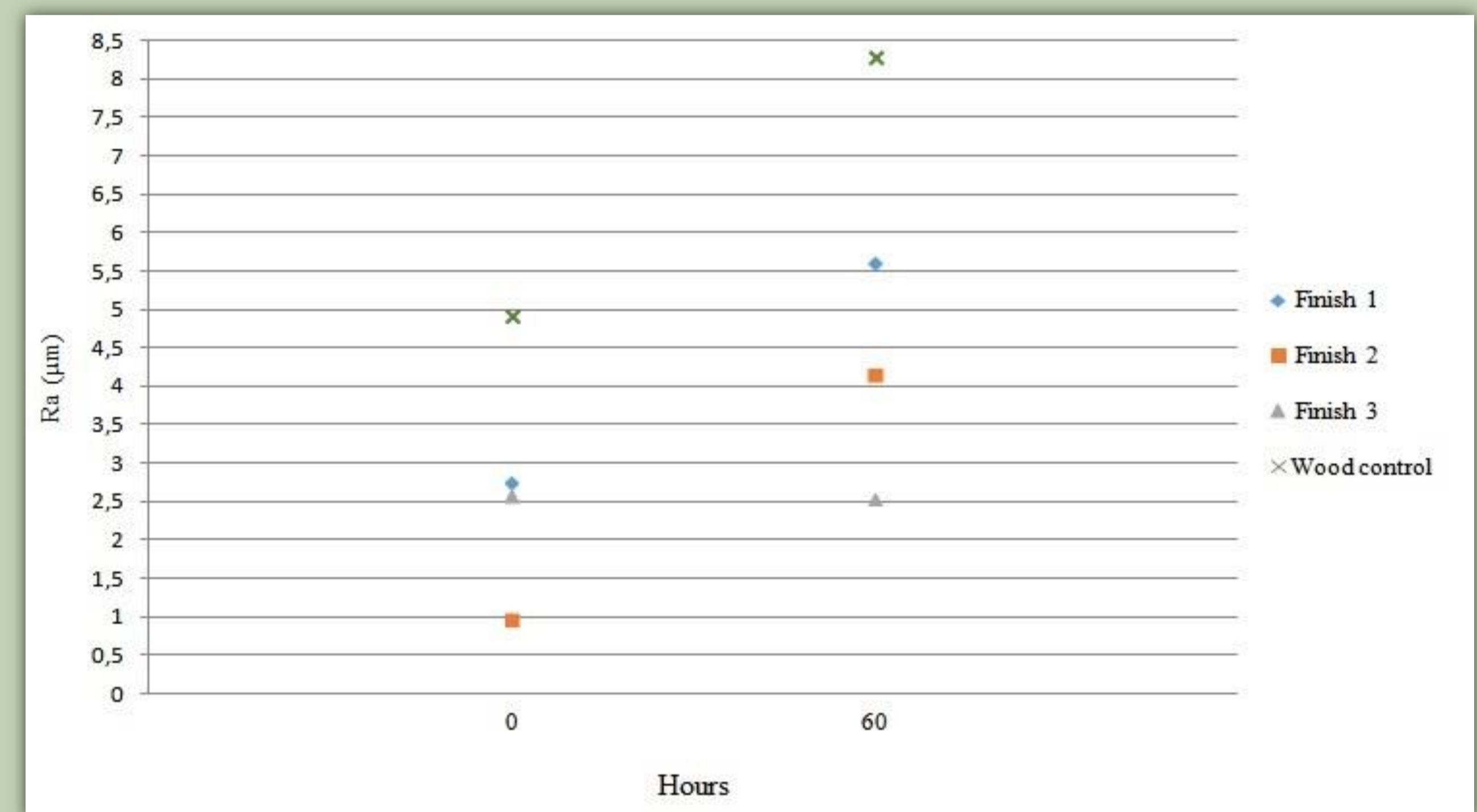


Figure 2: Variation of roughness of pine wood with different finishes to along 60 hours of exposure to accelerated weathering.

CONCLUSIONS

From the obtained results it can be concluded that wood finishing process inks and varnishes have a decreasing effect on the roughness of the surface.

Wood samples treated with varnish showed the best performance with the lowest variation in wood roughness regardless of the time of exposure to UV rays.

REFERENCES

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