

Thermal modification of black alder wood in an inert atmosphere under pressure

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INTRODUCTION & AIM

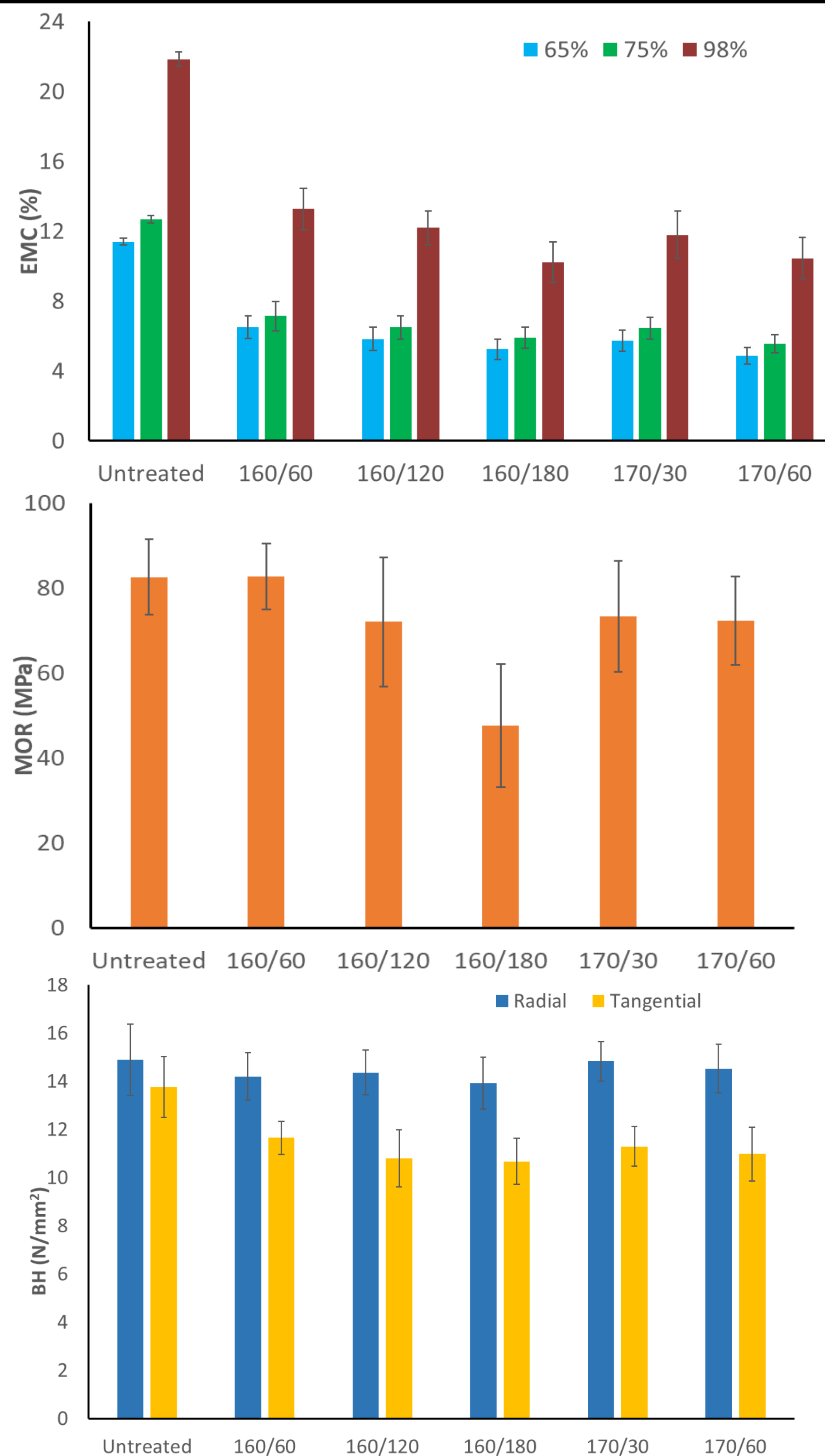
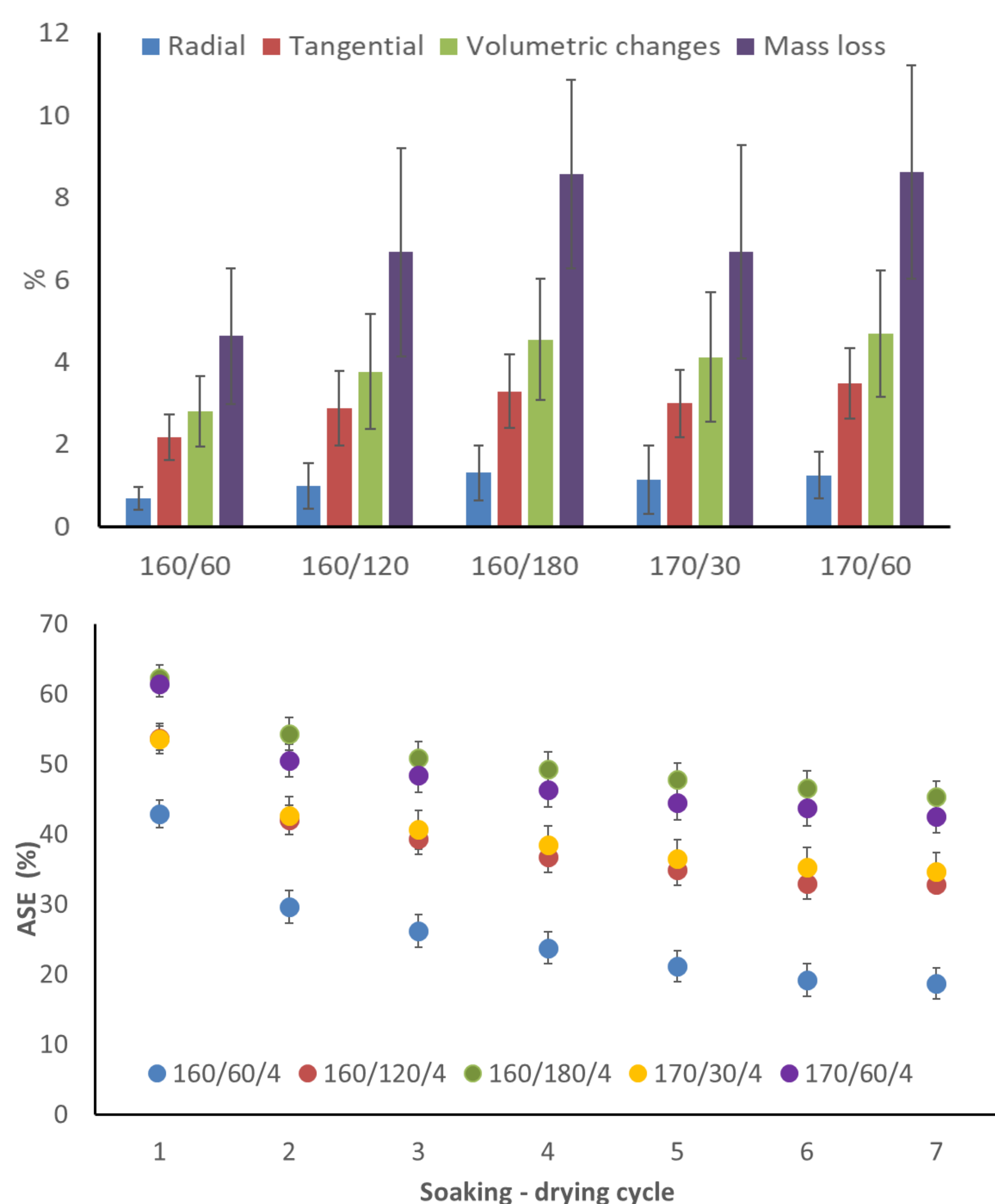
There is a fair amount of studies on black alder (*Alnus glutinosa*) wood thermal modification (TM) in steam or oxygen environments. However, there is a shortage of studies examining TM in nitrogen atmospheres, whether under open or closed systems and at standard or elevated pressures. This study expands the knowledge of TM applied to black alder, demonstrating its potential for use in sustainable wood product industries.

METHOD

The European black alder (*Alnus glutinosa*) wood boards (1000 x 100 x 32 mm) were TM in nitrogen (4 bar initial pressure), at temperature of 160°C for 60, 120 or 180 min and 170°C for 30 and 60 min.

TM black alder wood was characterised by dimensional changes and mass loss (ML), anti-swelling efficiency (ASE), equilibrium moisture content (EMC), modulus of rupture (MOR) and Brinell hardness (BH).

RESULTS & DISCUSSION



CONCLUSION

TM substantially improves dimensional stability and moisture resistance in black alder wood. The dark brown color developed during TM enhances its visual appeal, making it a competitively priced alternative to more expensive wood materials. The most appropriate treatment regime for black alder wood is 170/60.

FUTURE WORK / REFERENCES



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