



A. INTRODUCTION

Teak (*Tectona grandis*) and Kamper (*Dryobalanops spp*) are hardwood species largely used for exterior wood products. Wood products exposed outdoor could be weathered, especially in the tropical region with high in sun light intensity, rain intensity, and relative humidity. An effort that could be done to protect and enhance their performance is finishing. The effects of moisture condition of boards (green and dry), sawing pattern (quarter sawn and plain sawn), and two water based wood finishes (Sayerlack and Ultran Politur UV) were studied. Indonesian Pine (*Pinus merkusii*) was also investigated.

2. Coating Application

Ultran Penetran/Stain	UPT 851 Teak Color Spread Average 0.05 g/cm ²)	
Ultran Politur Top Coat	Ultran P03 UV Clear Gloss	
Sayerlac Stain	Sayerlac AML 3132 Neutral Color	
Sayerlac Top Coat	Sayerlac AML 3133 Gloss	

B. OBJECTIVE

The objective of this study was to determine the effectiveness of water based finishes on pine, teak, and kamper under weather exposure

C. RESEARCH METHODOLOGY

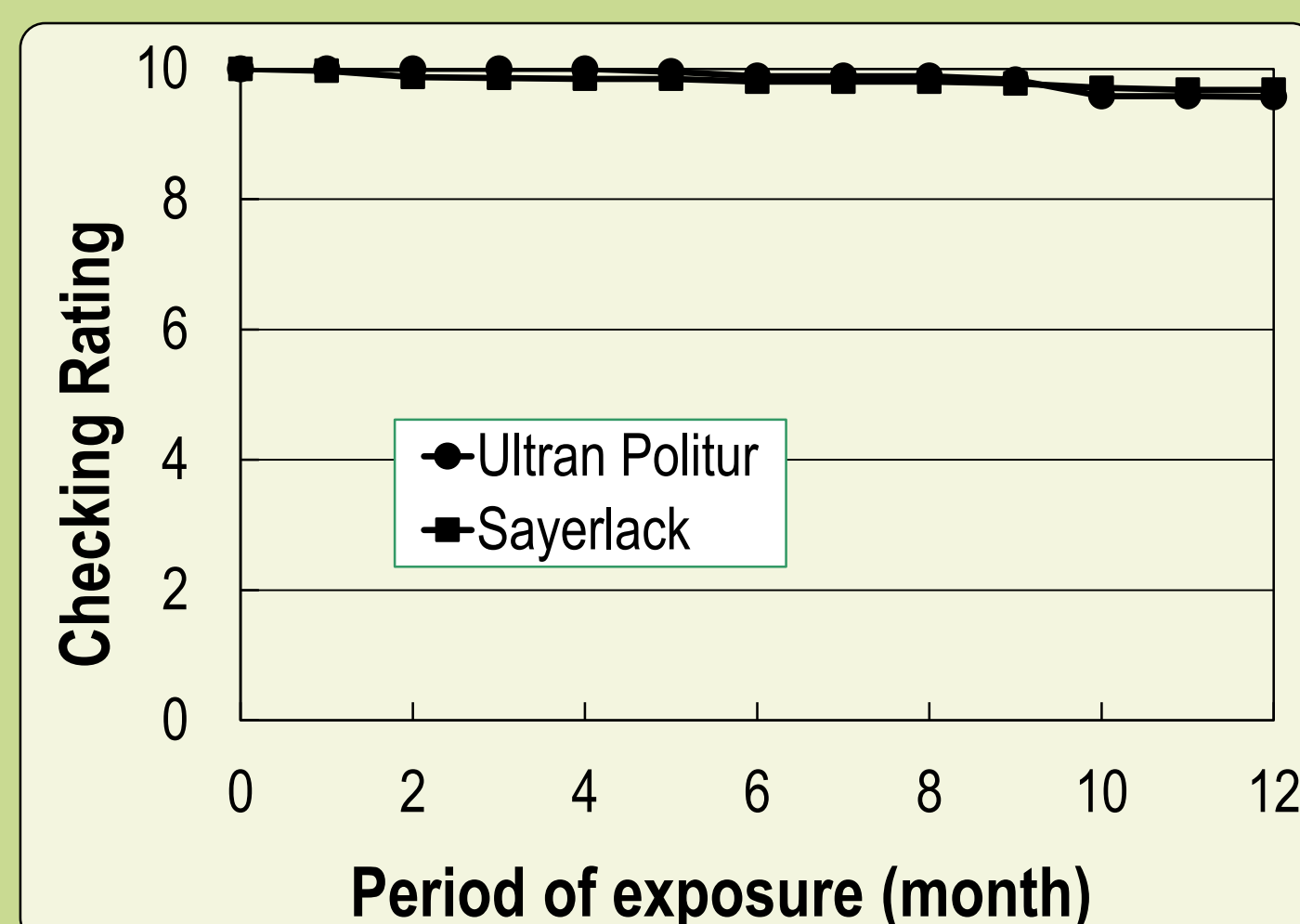
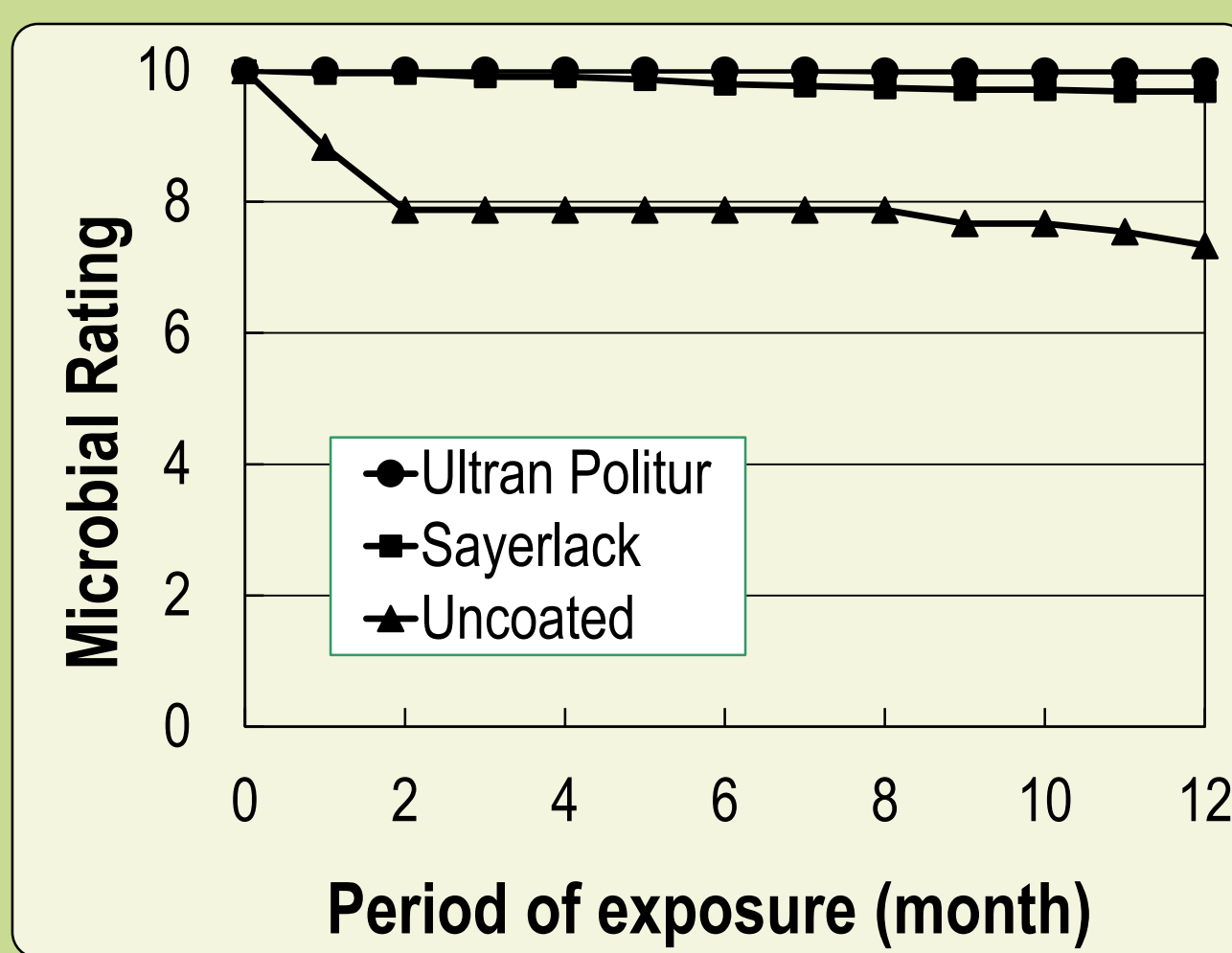
I. Treatments

Factors	Conditions		
Wood Species	Pine	Teak	Kamper
Sawn Board	Flat sawn		Quarter sawn
Moisture	25%-30%		10 - 15%
Water -Based Finishes	Uncoated	Ultran Politur UV	Sayer lack

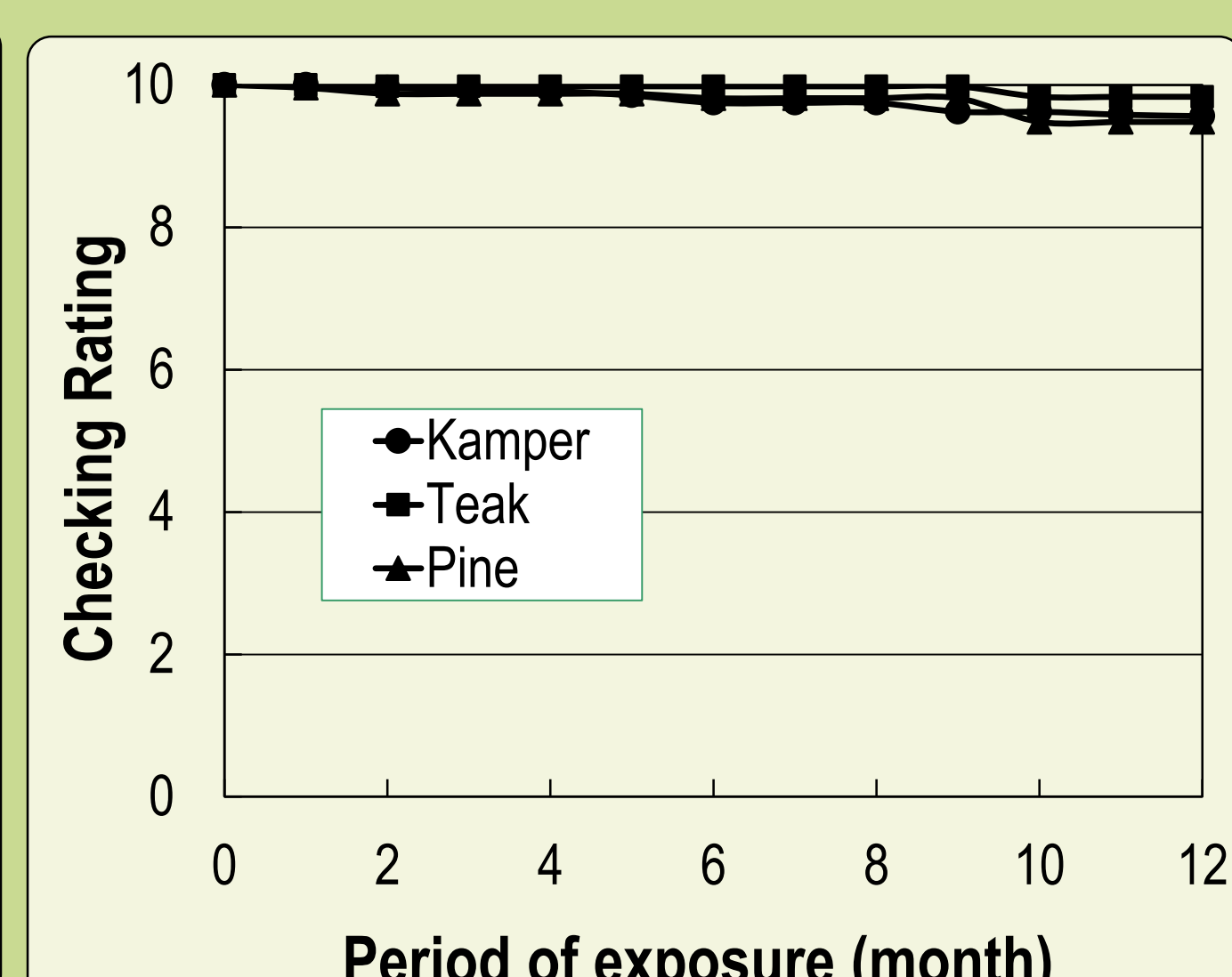
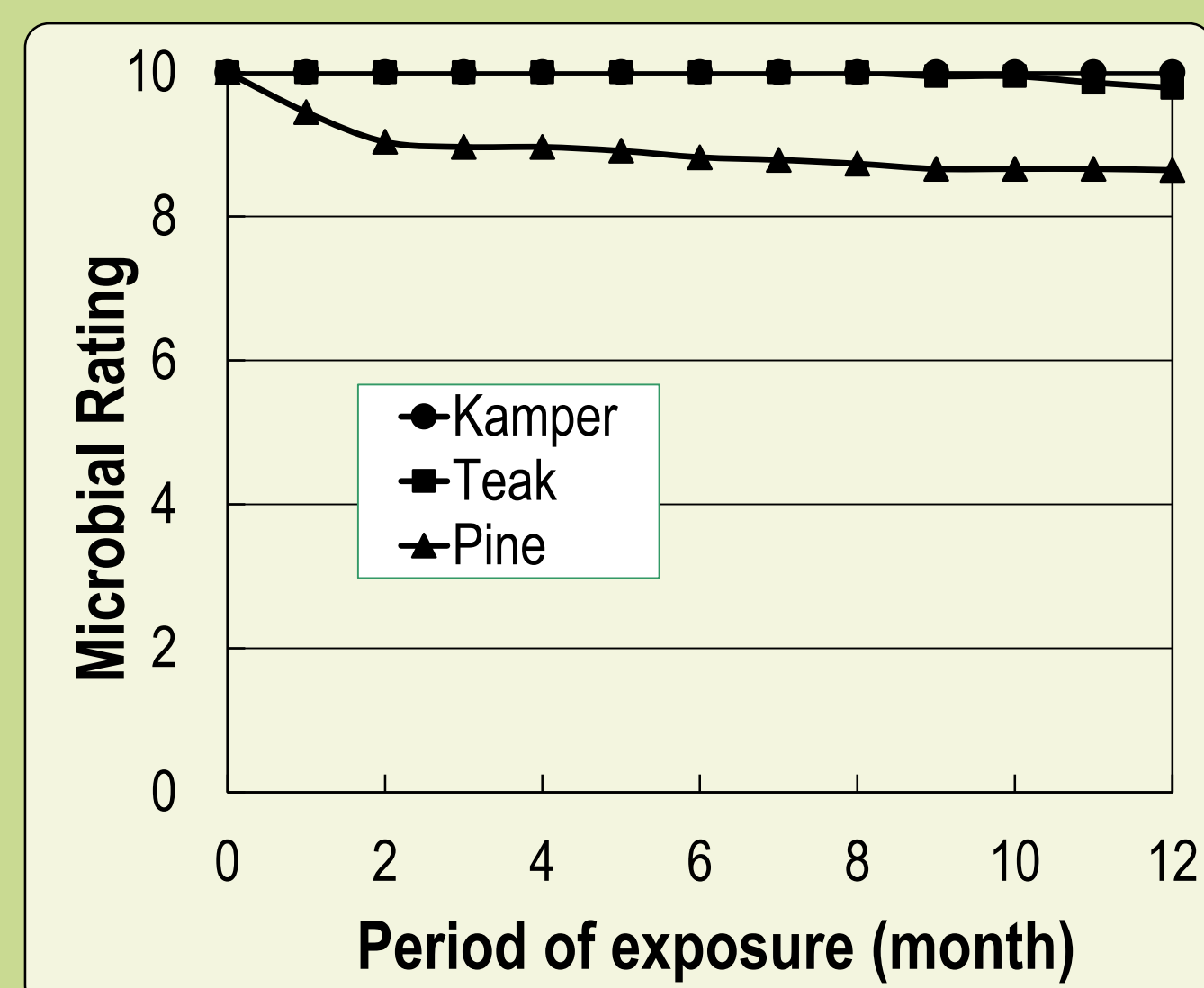
3. Weathering Test



D. RESULTS



Both the water based Ultran Politur and Sayerlac provide good protection to the surfaces of board against failures. The presence of failure due to microbial disfigurement and checking on the surfaces of the film (in average) were less than 10%. However, the percentages of failure were observed to be 20% due to microbial disfigurement and less than 10 % due to checking for the uncoated wood at the one year exposure.



After one year of exposure, teak and kamper retained better resistance against microbial attack compared to pine. The coating film on all wood surfaces exposed to the weather suffered a slight defect of checking. However the coated Pine was rated as class 8, while teak and kamper were rated as class 9.



One year outdoor exposure caused mainly aesthetical changes for films of the Ultran Politur and Sayerlack. The color changes of the uncoated pine, teak, and kamper woods were prominent than that of their coated woods. Coating degradation gradually became more pronounced during the exposure. The coating films on pine after one year presented light checking that resulted in the growth of blue stains. However there were no significant checking on the film of teak and kamper.

E. CONCLUSIONS

Good performance was recorded for the water-based coatings used in this study. It was observed that aesthetical changes occurred during the first year of outdoor exposure. Loss of gloss and discoloration were the first visible signs of degradation. During the first year of natural weathering the uncoated woods suffered a significant decrease on the color changes. At the beginning of the weathering, up to 1 year outdoor weathering, mainly aesthetical changes appeared with a slight checking on the film, that would promote a growth of fungi and mold. Therefore, the visual ratings up to 3 years would be considered for weathering assessment of the coated woods under this study.