THE ROLE OF PHENOLICS IN DISCOLOURATION OF NATURAL RUBBER

by

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Darkening of natural rubber during both processing stage and storage has been a problem of considerable concern. It is regarded to be of two types, enzymatic and non-enzymatic. Oxidation of phenolic compounds in latex by polyphenol oxidase, is of the first type which is generally considered responsible for discolouration of most of the latices. However, the nature of these phenolic compounds and their role in discolouration of rubber is not known.

Qualitative and quantitative study was made of phenolic compounds of two clones namely PB 86 and RRIC 7. Five phenolics were detected in RRIC 7 and three in PB 86 by paper chromatography. In both clones two compounds were found to be predominant. One of them was a phenolic, identified as tyrosine and the other is probably an indole compound.

A slight increase in the phenolic content was observed after Ethrel stimulation. Clonal variation of thiol content in latex was studied as thiols have been reported to react with phenolics to form colourless compounds. Addition of thiols to latex improved the colour and the oxidative resistence of rubber. Effect of addition of tyrosine, tryptophan and EDTA on final colour of the rubber is also reported.