Alternative Fungicides for the Leather Industry: Application in wet blue and vegetal leather

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Abstract

Leather can be commercialized in different states during the manufacturing process; conservation pickled, tanned wet or damp pretanned-oiled. That's why can remain stored for quite a long time in a temperature and humidity conditions that make them susceptible to fungal contamination. Tanners required using fungicides and environmental legislation obliges them to adapt their processes to alternative technologies, like fungicides with lower environmental impact.

In this work, we have chosen alternative compounds:

- The greater antifungal capacity of two of the alternative fungicides, DIMPTS and IPBC applied diiodometil p-tolylsulfone DIMPTS
- 3-Iodo-2-propynyl butylcarbamate IPBC
- thiabendazole TBZ

And their fungicidal capacity has been compared to that of conventional fungicides:

- 2-(thiocianometilthio)-1,3-benzothiazole TCMTB
- A mixture of phenolic compounds CMC+OPP

This fungicidal capacity was evaluated against different strains of fungi in two different processes:

- Chrome tanning process
- Fatliquoring process of hides tanned with vegetable extracts

Further studies consisted of a microbiological control samples inoculated with fungi common in tannery, determination of the fungicide content on the skin (total and stratigraphic) and a toxicity study of process wastewater.

to different processes confirms the results obtained in an earlier work, and ensure the possibility of use them in the leather sector. The other alternative, TBZ, does not possess the sufficient antifungal capacity to prevent contamination of wet-blue samples.

The skins obtained using alternative fungicides showed no stains or other defects, and toxicity from wastewater was lower in the case of the alternative products against those commonly used.