Amazonian Women’s Medicine: Treatments for Mycoses

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Results

Anti-fungal activity

Plants used against yeast infections were very active against Candida albicans, the fungus responsible for yeast infections. They were also active against S. cerevisiae, another yeast in the Ascomycota phylum.

Plants used against impetigo were shown to be slightly less active against dermatomycosis in the disk diffusion assay, although they were active against yeasts, indicating anti-fungal activity.

<table>
<thead>
<tr>
<th>TABLE 1: Anti-fungal activity of treatments for yeast infections</th>
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<tbody>
<tr>
<td>Species</td>
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<tr>
<td>Amanita muscaria</td>
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<tr>
<td>Aspergillus flavus</td>
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<tr>
<td>Aspergillus niger</td>
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<tr>
<td>Aspergillus oryzae</td>
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<tr>
<td>Aspergillus terreus</td>
</tr>
<tr>
<td>Candida albicans</td>
</tr>
<tr>
<td>Candida parapsilosis</td>
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<tr>
<td>Cryptococcus neoformans</td>
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</table>

Discussion

• Correlation between gathered ethnobotanical information and laboratory testing is high: all but one of the treatments for yeast infections were active against the yeast Candida albicans.

• Plants used against yeast infections were not as active against dermatomycosis. This could be due to the testing procedure, since the disk diffusion assay technique was not optimized for mycelial fungi. A susceptibility test was also conducted on the dermatomycosis with poor results. Other techniques for conducting bioassays on dermatomycosis should be explored.

• Most plants were not anti-bacterial. People may have selected plants that in addition to inhibiting fungal growth, do not kill the beneficial, normally-occurring bacteria that protect against yeast infections.

• The two cyanotoxic plants, Croton lechleri and Cryptocoryne paepava, were the only two for which extraordinary caution was urged: they are known to be potent plants, and two drops, heavily diluted in water, are effective in medicine.

• Results indicate that ethnobotanical studies are a very efficient way of researching medicinal plants. Random screening for anti-yeast plants would not yield as high a percentage of active plants.

Medicinal plant extracts at the market. (Experimental extract (10%, ethanol), traditional extract (aguarante, or sugar cane rum).

Materials and Methods

Plants were identified and collected at the Yanpa site except plants that were not available in the Yanpa forest, which were purchased in the medicinal plants market in Leticia. These included Brosimum rubescens, Curcularia guianensis, Strychnos pentecostalis, Colocynthis aculeata, and Croton lechleri. Plants used were identified with the help of a merchant specializing in yeast infections (Norman’s mix). Two plant uses for treating yeast infections were made by local collecting were also tested. Plants were grown and extracted at 70% ethanol at a standard concentration of 25mg/ml. Extracts were tested whole, the goal being to study each plant as it is used in folk medicine. All 25 plants were tested against the following microorganisms using a disk diffusion assay on appropriate media:

<table>
<thead>
<tr>
<th>Dual-action Assays (C. albicans, S. cerevisiae)</th>
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</thead>
<tbody>
<tr>
<td><em>coconut oil</em> (C. albicans and S. cerevisiae)</td>
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<tr>
<td><em>two dermatophytes</em> (Trichophyton mentagrophytes and Epidermophyton floccosum)</td>
</tr>
<tr>
<td><em>two gram-positive bacteria</em> (Staphylococcus aureus and Micrococcus luteus)</td>
</tr>
<tr>
<td><em>three gram-negative bacteria</em> (Escherichia coli, Pseudomonas aeruginosa, and Proteus vulgaris)</td>
</tr>
</tbody>
</table>

Cytotoxicity

The plants were generally non-toxic to cancer cell lines. The point of recovery of the cancer cells was the 2nd or 3rd dilution (0.5x or 1.0x extract, 10mg/ml) for all but two treatments. Croton lechleri (Sangre de Grado) was toxic at the 1st dilution (0.5x) and Cryptocoryne paepava (Cape) at the 1st to 2nd dilution.

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References


Additional material thanks by Peter Freyson Croton lechleri photograph: 01412 © Croton lechleri (Sangre de Grado) #927 #928 Croton lechleri (Sangre de Grado) #927 #928

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