



# Photodegradation of the *Mycobacterium ulcerans* Toxin, Mycolactones: Considerations for Handling and Storage

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Titre	Photodegradation of the <i>Mycobacterium ulcerans</i> Toxin, Mycolactones: Considerations for Handling and Storage
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Auteur	Marion, Estelle [1], Prado, Soizic [2], Cano, Camille [3], Babonneau, Jérémie [4], Ghamrawi, Sarah [5], Marsollier, Laurent [6]
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Résumé en anglais	<p><b>Background</b>Mycolactones are toxins secreted by <i>M. ulcerans</i>, the etiological agent of Buruli ulcer. These toxins, which are the main virulence factors of the bacilli, are responsible for skin lesions. Considering their specificity for <i>M. ulcerans</i> and their presence in skin lesions even at early stages, mycolactones are promising candidates for the development of a diagnostic tool for <i>M. ulcerans</i> infection. Stability of purified mycolactones towards light and heat has not yet been investigated, despite the importance of such parameters in the selection of strategies for a diagnosis tool development. In this context, the effects of UV, light and temperature on mycolactone stability and biological activity were studied.</p> <p><b>Methodology/Principal Findings</b>To investigate the effect of these physical parameters, mycolactones were exposed to different wavelengths in several solvents and temperatures. Structural changes and biological activity were monitored. Whilst high temperature had no effect on mycolactones, UV irradiation (UV-A, UV-B and UV-C) and sunlight exposure caused a considerable degradation, as revealed by LC-MS and NMR analysis, correlated with a loss of biological activity. Moreover, effect of UVs on mycolactone caused a photodegradation rather than a phototransformation due to the identification of degradation product.</p> <p><b>Conclusion/Significance</b>This study demonstrates the high sensitivity of mycolactones to UVs as such it defines instructions for storage and handling.</p>
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## Liens

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