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The impact of palm oil feedstock within the LCA of a bio-sourced cosmetic cream

S. Martinez, C. Bessou, L. Hure, J. Guilbot, A. Hélias



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### 3 **The impact of palm oil feedstock within the LCA of a bio-sourced cosmetic** 4 **cream**

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6 S. Martinez<sup>a,b</sup>, C. Bessou<sup>c,b</sup>, L. Hure<sup>a,b</sup>, J. Guilbot<sup>d</sup>, A. Hélias<sup>a,b</sup>

7  
8 <sup>a</sup>LBE, Montpellier SupAgro, INRA, 102 avenue des Etangs, 11100, Narbonne, France

9 <sup>b</sup>Elsa, Research group for Environmental Lifecycle Sustainability Assessment, Montpellier SupAgro, 2  
10 place Pierre Viala, 34060, Montpellier, France

11 <sup>c</sup>CIRAD, UPR Systèmes de pérennes, 34398 Montpellier, France

12 <sup>d</sup>SEPPIC, 81100, Castres, France

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14 Abstract

15 We performed a cradle-to-grave life cycle assessment (LCA) of a bio-based cosmetic cream  
16 containing Refined Palm Kernel Oil (RPKO). The objective was to investigate the importance of the  
17 RPKO production within the environmental impact of the cosmetic cream. We assumed a baseline  
18 scenario with best oil palm agricultural practices in Malaysia, and then tested different parameters,  
19 i.e. deforestation, peat soil drainage and improved effluent treatment, in order to check their  
20 influences.

21 In the baseline scenario, transport of the cosmetic cream was the main contributing process (largest  
22 contribution for 11 out of 15 impact indicators). Contribution of the packaging of the cosmetic cream  
23 was also significant (largest for 2 out of 15). RPKO had a low impact contribution in the baseline  
24 scenario, albeit a much more critical one in the alternative scenarios. Deforestation and peat soil  
25 drainage (i.e. transformation and occupation) influenced two environmental indicators: Climate  
26 Change and Land Use. On Climate change indicator, deforestation caused an increase of about 9% of

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