

LIGNIN EXTRACTION FROM BREWER'S SPENT GRAIN AND EVALUATION OF ITS ANTIOXIDANT CAPACITY



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PORTO

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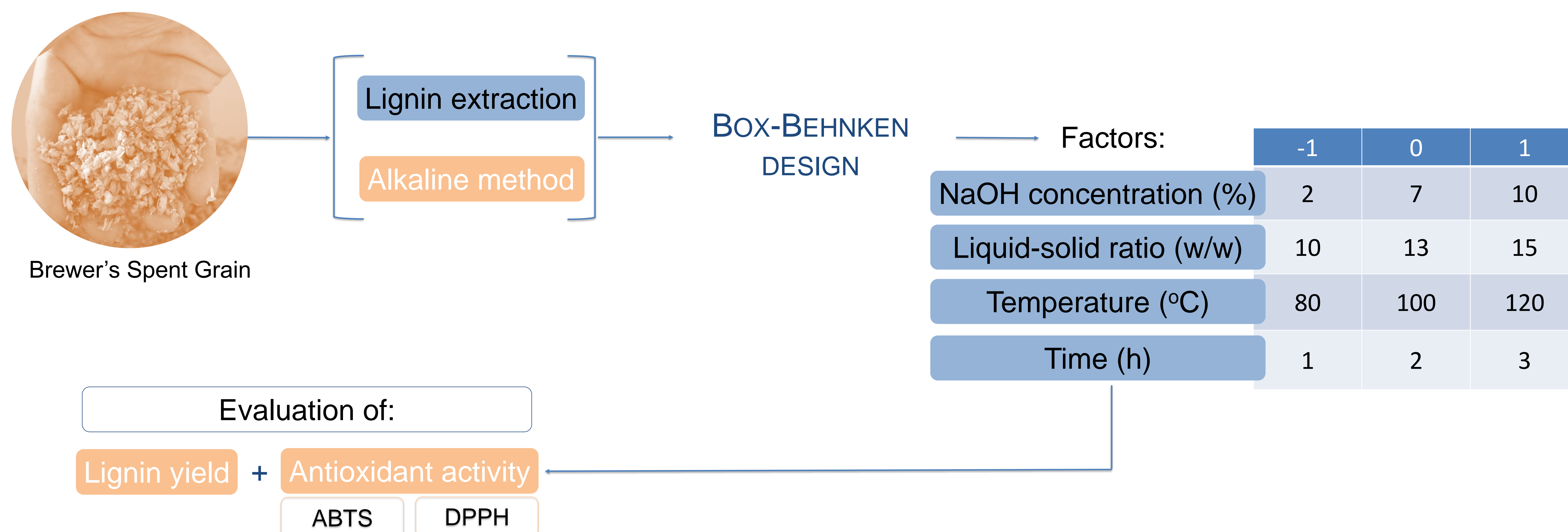
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INTRODUCTION

Lignin, present in the lignocellulosic biomass, is an underrated biopolymer that is commonly burned as fuel in heat and power industrial plants (1). However, there is a growing interest and scientific progress towards lignin valorization through the development of new products, solutions and materials (2,3).

Hence, this work aimed at valorizing lignin from brewer's spent grain as a natural antioxidant agent.

METHODS



RESULTS

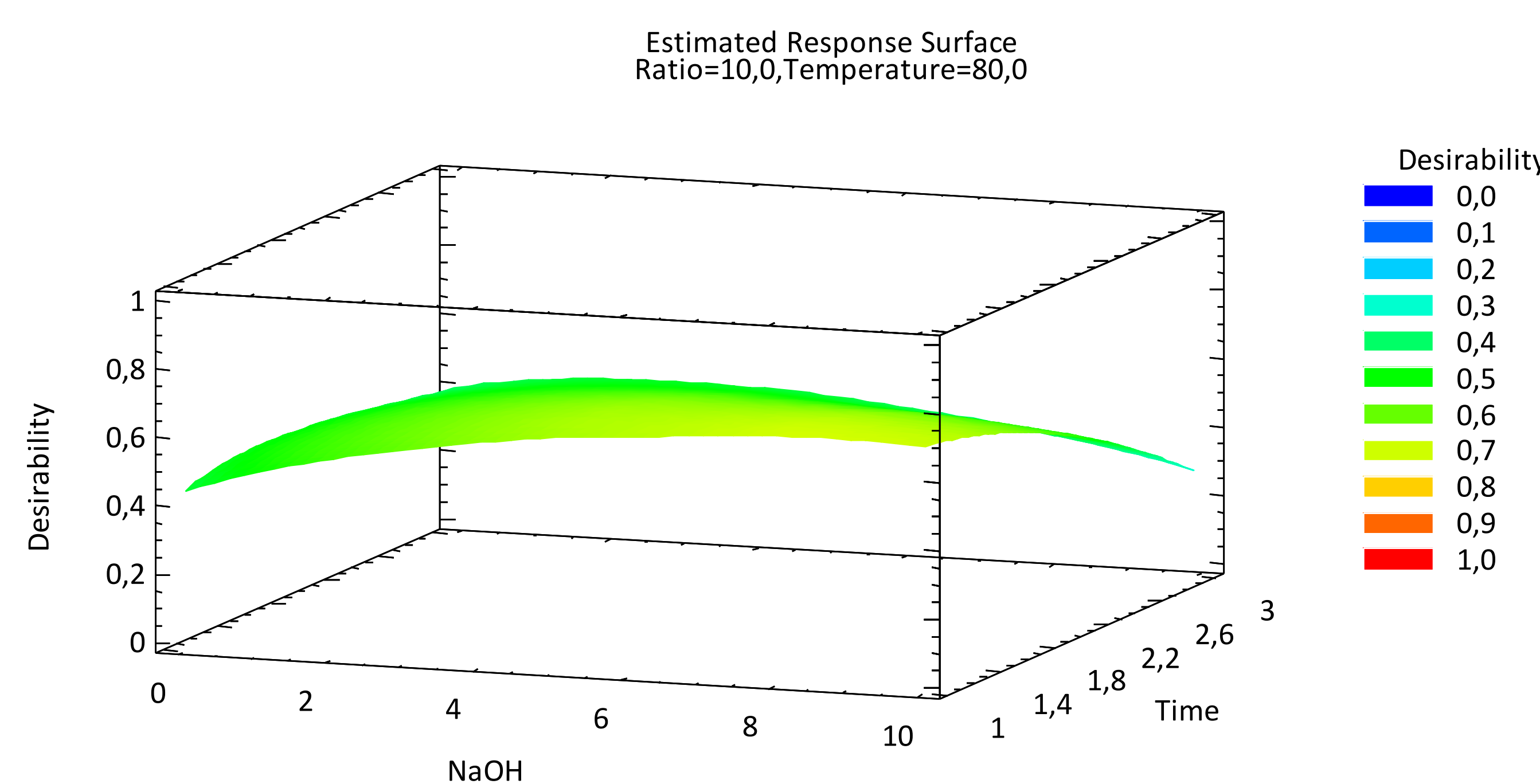
Optimum extraction conditions
(Desirability = 0.69)

NaOH concentration (%) **9**

Liquid-solid ratio (w/w) **10**

Temperature (°C) **80**

Time (h) **1**



Lignin yield **91.7 %**

Antioxidant activity

ABTS

57.75 μM
Trolox
equivalent/
mg of lignin

DPPH

32.31 μM
Trolox
equivalent/
mg of lignin

Figure 1 – Estimated Response Surface of the extraction of lignin from brewer's spent grain.

CONCLUSIONS

Through this work, it was possible to define adequate conditions for the extraction of lignin from brewer's spent grain, targeting antioxidant properties. Lignin-rich extracts presented a good capability to reduce both ABTS and DPPH, showing that brewer's spent grain is a potential source of lignin with antioxidant capacity.

Bibliography

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