



## GANODERMA LUCIDUM ENRICHMENT OF SUGAR-FREE RAW-VEGAN BROWNIE BALLS

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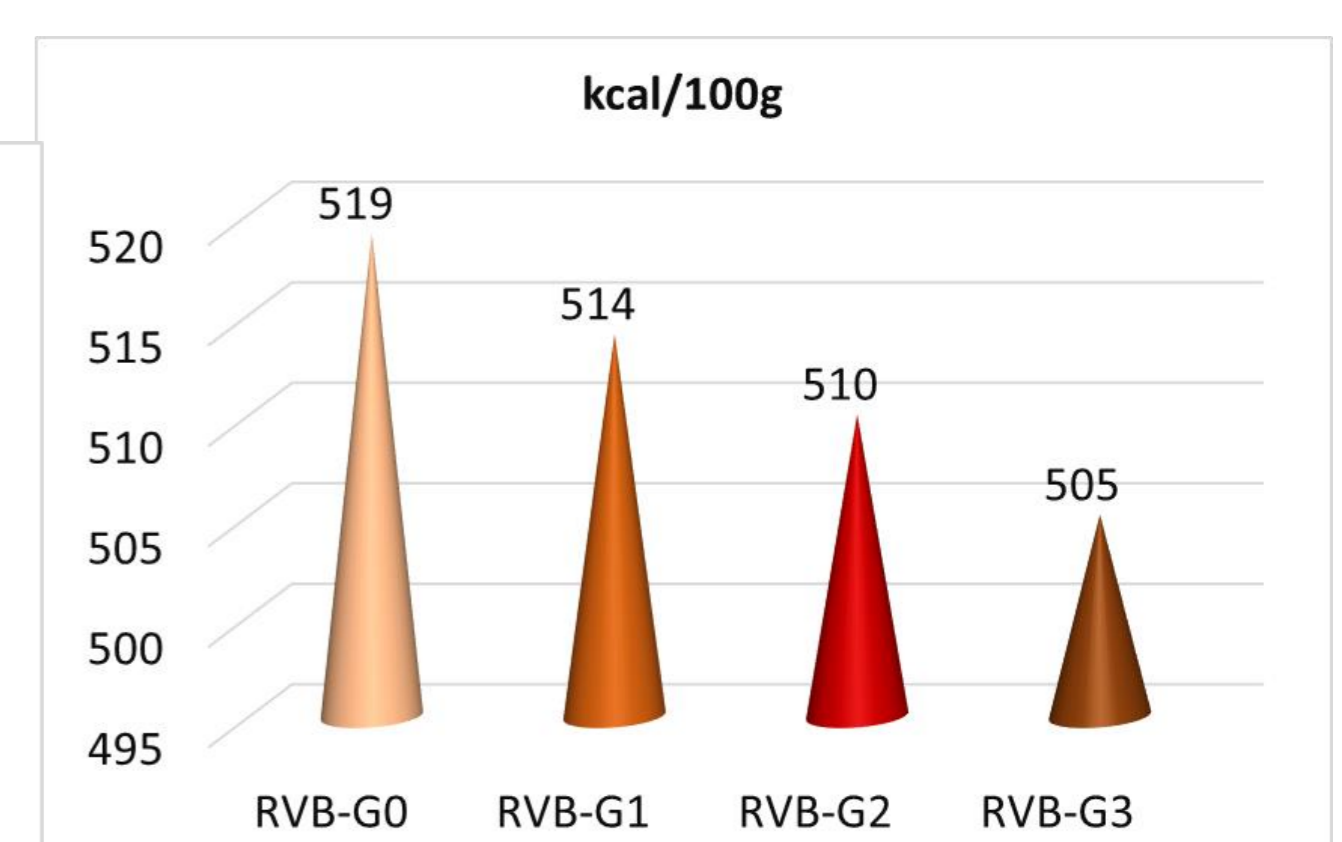
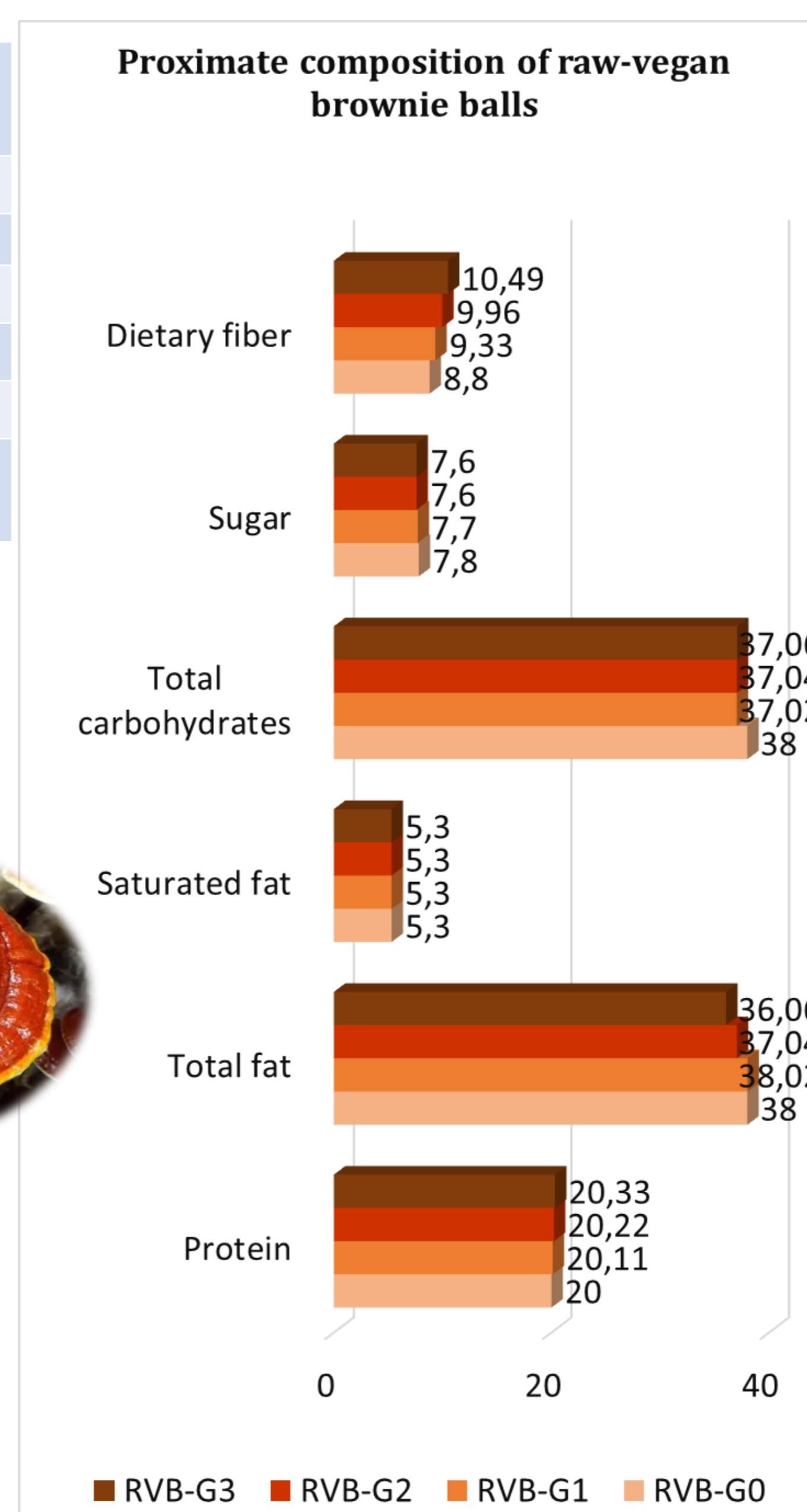
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**Abstract:** Driven Despite the global popularity of conventional confectionery, their elevated glycemic index and unfavorable lipid profiles are increasingly linked to adverse metabolic outcomes. Consequently, developing functional alternatives, such as raw-vegan and sugar-free formulations, is essential for promoting healthier dietary patterns. This study investigated the fortification of raw-vegan brownie balls with *Ganoderma lucidum* powder, a medicinal mushroom renowned for its bioactive properties and versatility in functional food design. The primary objective was to develop and characterize three experimental formulations containing 1% (RVB-G1), 2% (RVB-G2), and 3% (RVB-G3) *G. lucidum* powder, respectively. These were comparatively evaluated against a control sample (RVB-C) regarding their proximate composition, total polyphenol content (TPC), antioxidant activity, and sensory attributes. The base matrix consisted of walnuts, cashews, dates, coconut flakes, cocoa powder, and hemp seeds. Experimental data revealed that the incorporation of *G. lucidum* significantly enhanced the TPC and radical scavenging activity in a dose-dependent manner. Furthermore, sensory analysis indicated that all enriched variants outperformed the control in terms of overall acceptability, with the 3% inclusion level (RVB-G3) identified as the optimal formulation. These findings suggest that *G. lucidum* represents a viable ingredient for enhancing the nutritional and antioxidant profile of unbaked desserts without compromising organoleptic quality.

### • Results and discussions

Ingredient (%)	RVB assortment	RVB-G1	RVB-G2	RVB-G3	RVB-G0
Dates		30	30	30	30
Cocoa powder		5	5	5	5
Cashew nuts		30	30	30	30
Walnuts		30	30	30	30
Coconut flakes		4.5	4	3.5	5
Ganoderma lucidum powder		0.5	1	1.5	-

Sample	Total polyphenols content (mg GAE/g)	RSA (%)
RVB-G0	4.61 ± 0.06	75.89 ± 0.88
RVB-G1	5.68 ± 0.08	89.18 ± 1.02
RVB-G2	6.79 ± 0.11	90.36 ± 1.34
RVB-G3	7.91 ± 0.16	93.78 ± 1.61



### • Conclusions

This study demonstrates that *Ganoderma lucidum* is a highly effective functional ingredient for enhancing raw-vegan desserts, as its incorporation significantly boosts total polyphenol content and antioxidant activity in a dose-dependent manner. Beyond the nutritional improvements, the enriched formulations—particularly the 3% concentration (RVB-G3)—surpassed the control sample in sensory appeal and overall acceptability. These findings suggest that medicinal mushrooms can be successfully integrated into sugar-free, unbaked confectionery to create health-promoting alternatives that do not compromise on taste or texture

