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# Impact of Drying Condition on the Nutritional Properties of Soy Okara and Slurry Powders

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**Structured Abstract**

**Background:** Recently, the used of soybean by-products as functional ingredients is widely increased. However, it is high perishability due to its high moisture content. Transforming these by-products into powder form is an effective way for improving stability, extending shelf life, and facilitating sustainable utilization. This study investigates the effect of drying temperature in producing a good quality of soy powders.

**Methods:** Okara and soy slurry were dried in a conventional hot-air oven at 60 and 105°C until the moisture levels stabilized (< 3%). Okara and soy slurry powder from selected drying conditions were analysed for its nutritional and bioactive compositions.

**Results:** Results shows that drying okara at 105°C for 3 hours and soy slurry at 60°C for 12 hours was optimal condition to remove moisture (<3%) and water activity (<0.3) efficiently while preserving its colour. This study reported that soy slurry powder had higher protein (54.78%), starch (226.25 mg/g), calcium (46.5 mg/g), phenolic (0.37 mg GAE/g), and flavonoid (0.50 mg QE/g) contents as compared to okara powder. In contrast, okara powder was demonstrated greater insoluble fiber content (12.33%) and cellulose-rich hollow cavities that retain water efficiently. Furthermore, soy by-product powder contains 18 essential amino acids, which okara powder prominently high in Proline and Arginine while slurry powder is high in threonine and Methionine, respectively.

**Conclusion:** In conclusion, this study demonstrates that by-products of soy provide a valuable nutritional and bioactive compounds. Okara powder is enrich in fiber content, while soy slurry powder serves as a rich protein, calcium, and bioactive source. The study also establishes an effective drying conditions for producing sustainable soy by-product powders suitable for use as various food applications.

**Keywords:** Soy by-product, Drying condition, Nutritional value, Bioactive compounds

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