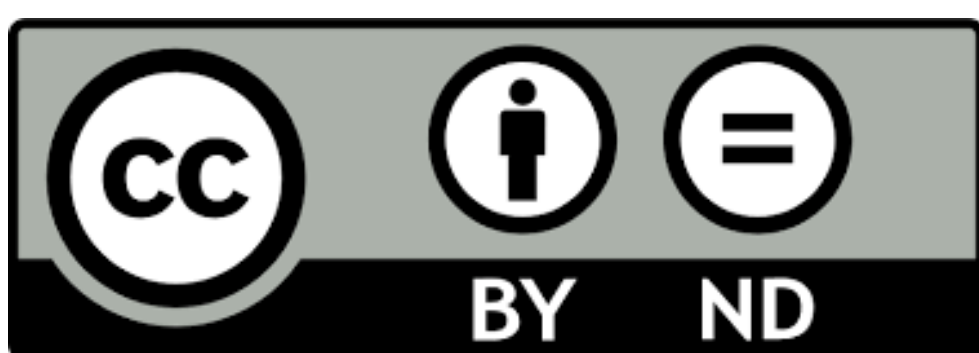




INFOGRAPHIC

NGHIÊN CỨU ẢNH HƯỞNG CỦA ENZYME PECTINASE ĐẾN HIỆU SUẤT THU HỒI VÀ CHẤT LƯỢNG NƯỚC ME

Tác giả: Nguyễn Khánh Thuận
Đơn vị: Khoa Khoa học Ứng dụng & Công nghệ
Năm xuất bản: 2026



Nghiên cứu ảnh hưởng của enzyme Pectinase đến hiệu suất thu hồi và chất lượng nước me © 2026 bởi **Nguyễn Khánh Thuận** được cấp phép theo **CC BY-ND 4.0**.

INVESTIGATION OF THE EFFECTS OF PECTINASE ON THE EXTRACTION YIELD AND QUALITY OF TAMARIND JUICE

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ABSTRACT

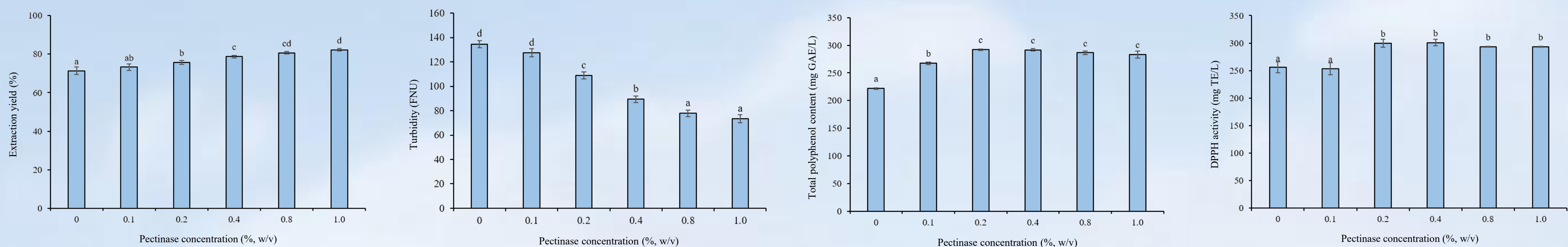
This study investigated the effects of pectinase on the extraction yield and quality of tamarind (*Tamarindus indica* L.) juice. Single-factor experiments examined pectinase concentrations of 0–1.0%, treatment times of 0–300 min, and temperatures of 30–80°C. The evaluated parameters included extraction yield, turbidity, total polyphenol content (TPC), and DPPH radical-scavenging activity. Increasing the pectinase concentration from 0 to 1.0% increased extraction yield from 71.36% to 82.21% and reduced turbidity from 134.56 to 73.44 FNU. In the separate time and temperature experiments, the highest mean extraction yields occurred at 240 min (82.75%) and 50°C (81.86%), respectively. However, prolonged treatment and increasing temperature reduced TPC and DPPH activity. Considering these quality parameters, 0.4% pectinase, a treatment time of 180 min, and a temperature of 50°C are proposed for validation in a combined treatment experiment.

MATERIALS AND METHODS



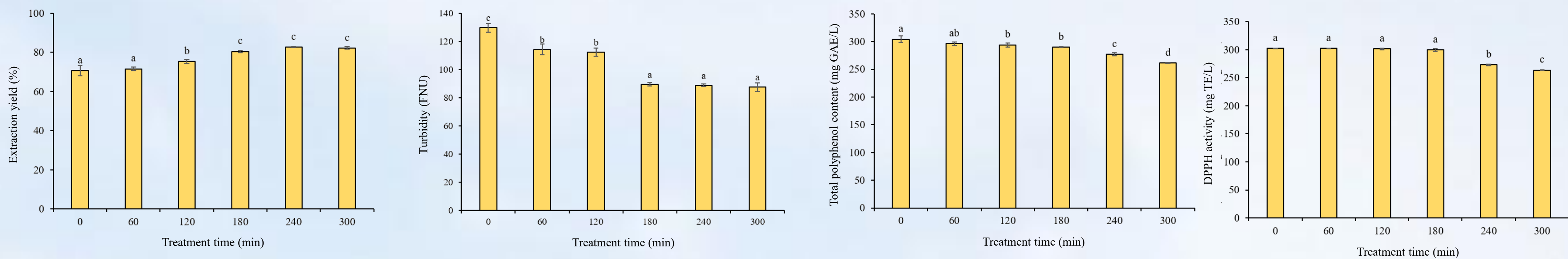
RESULTS

EFFECT OF PECTINASE CONCENTRATION



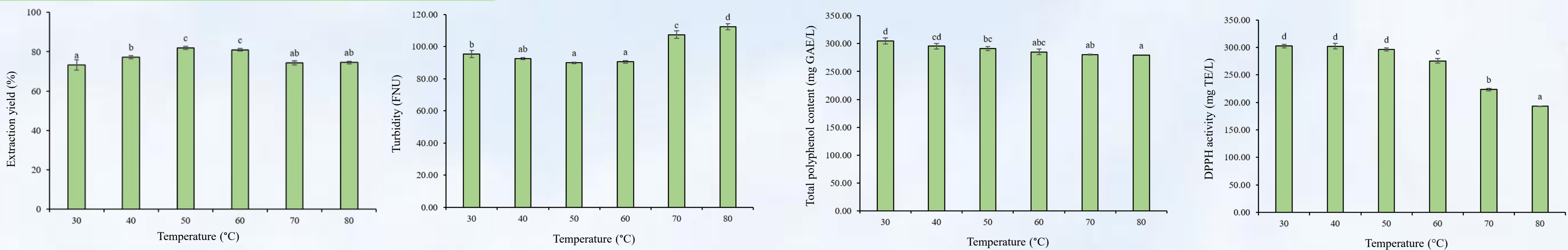
Yield increased from 71.36% to 82.21%; turbidity decreased from 134.56 to 73.44. TPC and DPPH activity were high at 0.2–0.4%.

EFFECT OF TREATMENT TIME



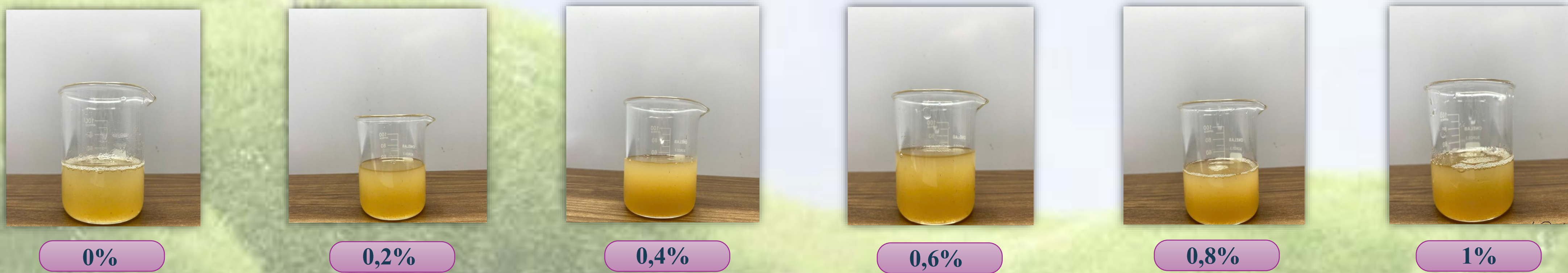
Yield peaked at 240 min (82.75%). TPC and DPPH activity declined markedly from 240 min; 180 min balanced yield and quality.

EFFECT OF TEMPERATURE



Yield peaked at 50°C (81.86%). At 70–80°C, DPPH activity decreased markedly and turbidity increased.

TAMARIND EXTRACT



CONCLUSION

Pectinase improved tamarind juice extraction yield and reduced turbidity. Enzyme concentration, treatment time, and temperature influenced extraction yield, juice clarity, and antioxidant properties. Prolonged treatment and high temperatures require careful control to limit reductions in TPC and DPPH activity. Based on the single-factor experiments, 0.4% pectinase, 180 min, and 50°C are proposed to balance extraction yield and juice quality. The combined effects of these conditions require experimental validation before an optimal process can be established.

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