

**Quality Advantages of Food Grade
Soybeans from the Upper Midwest:
storage perspective**

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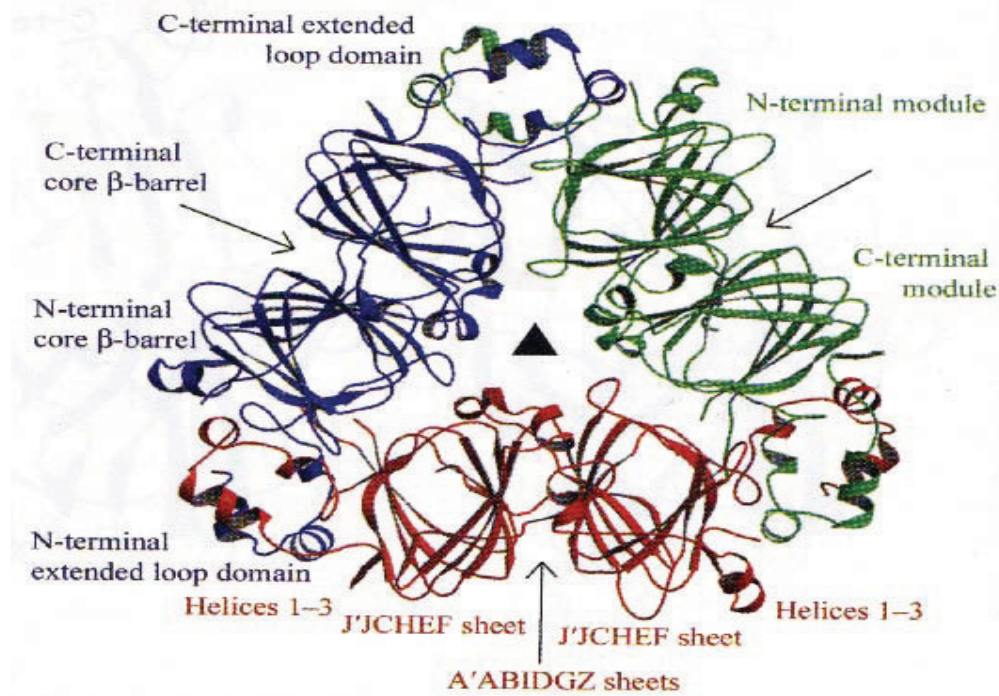
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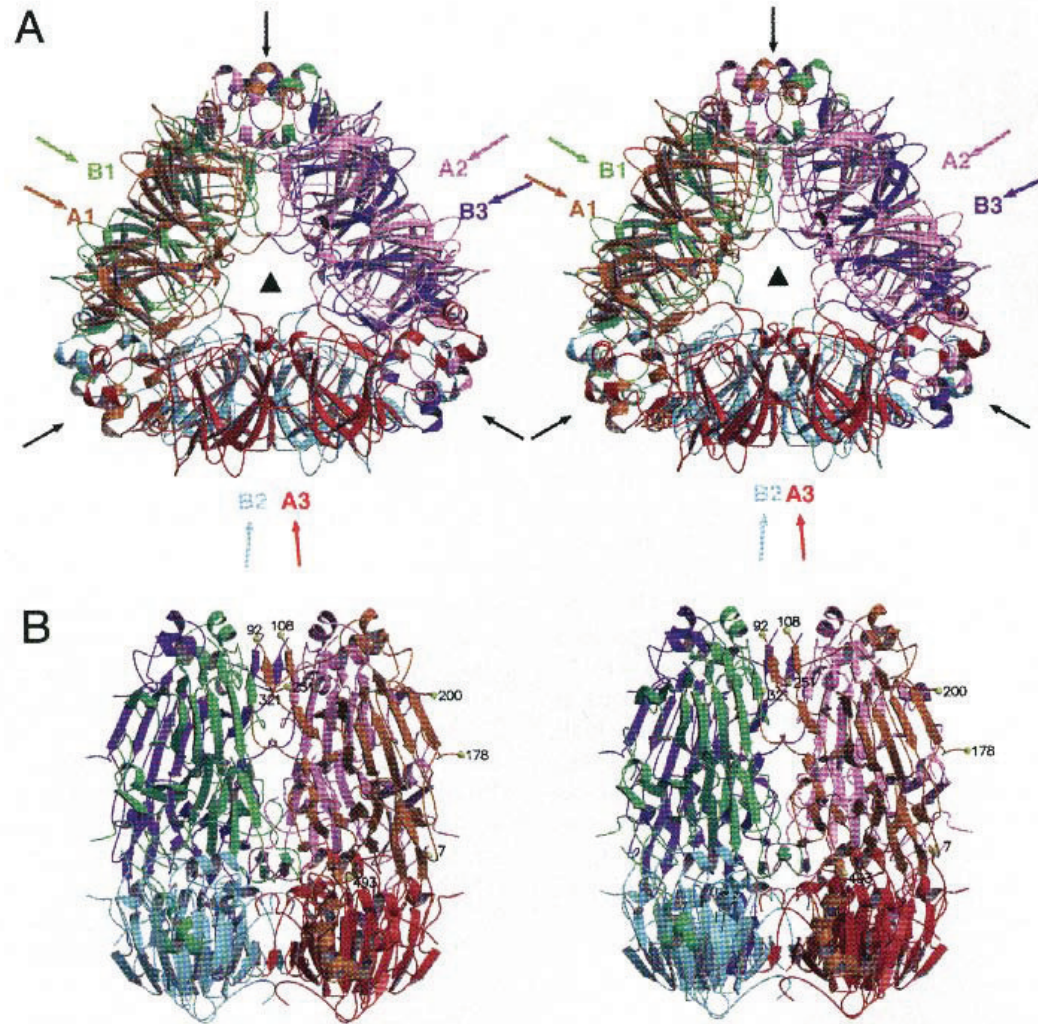
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7S, β -Conglycinin: 35% of Total Soy Protein



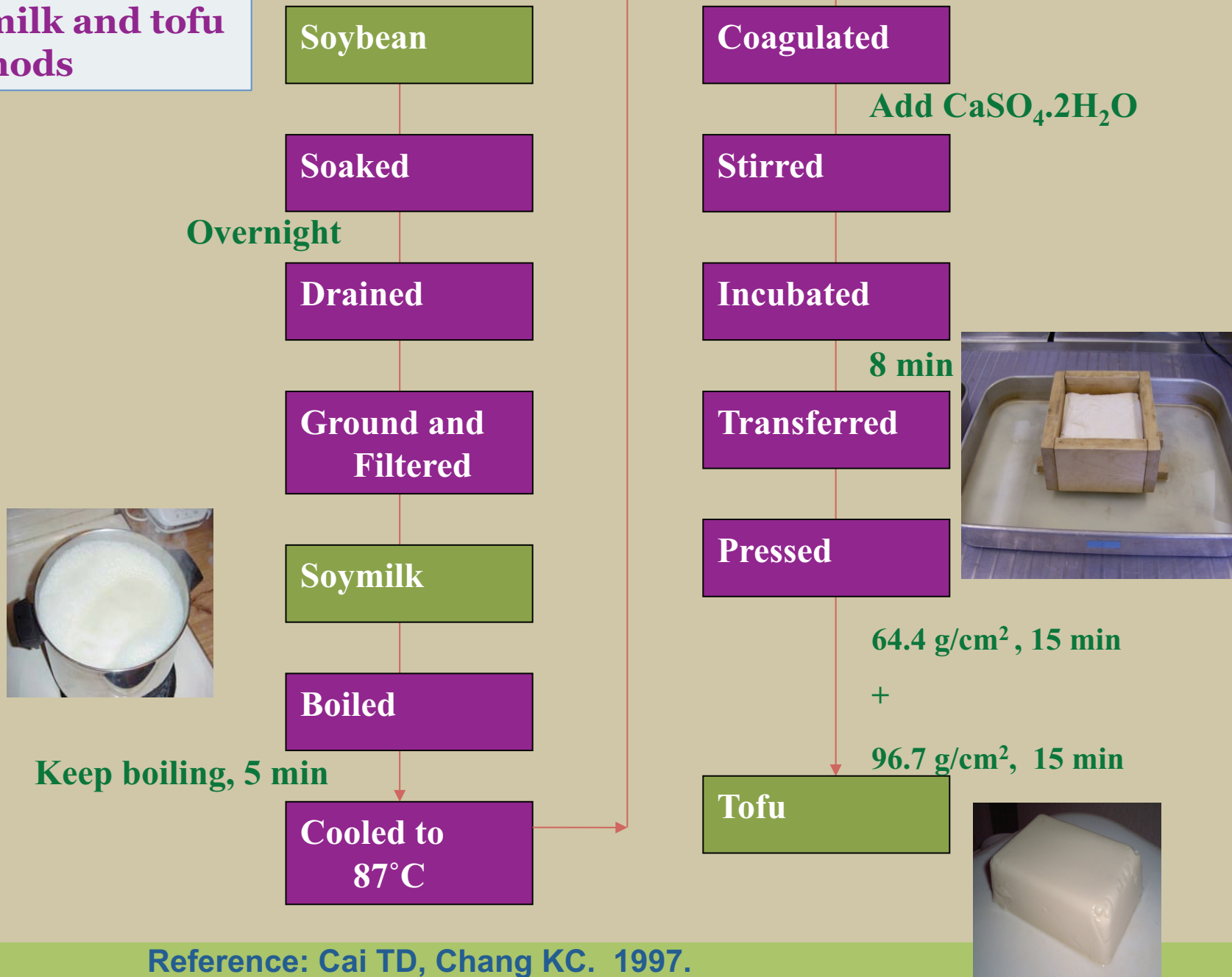
(Maruyama et al., 2003)

11S, Glycinin: 40% of Soy Proteins



(Adachi et al., 2003)

Soy milk and tofu methods



Reference: Cai TD, Chang KC. 1997.

Soybean and storage conditions

34

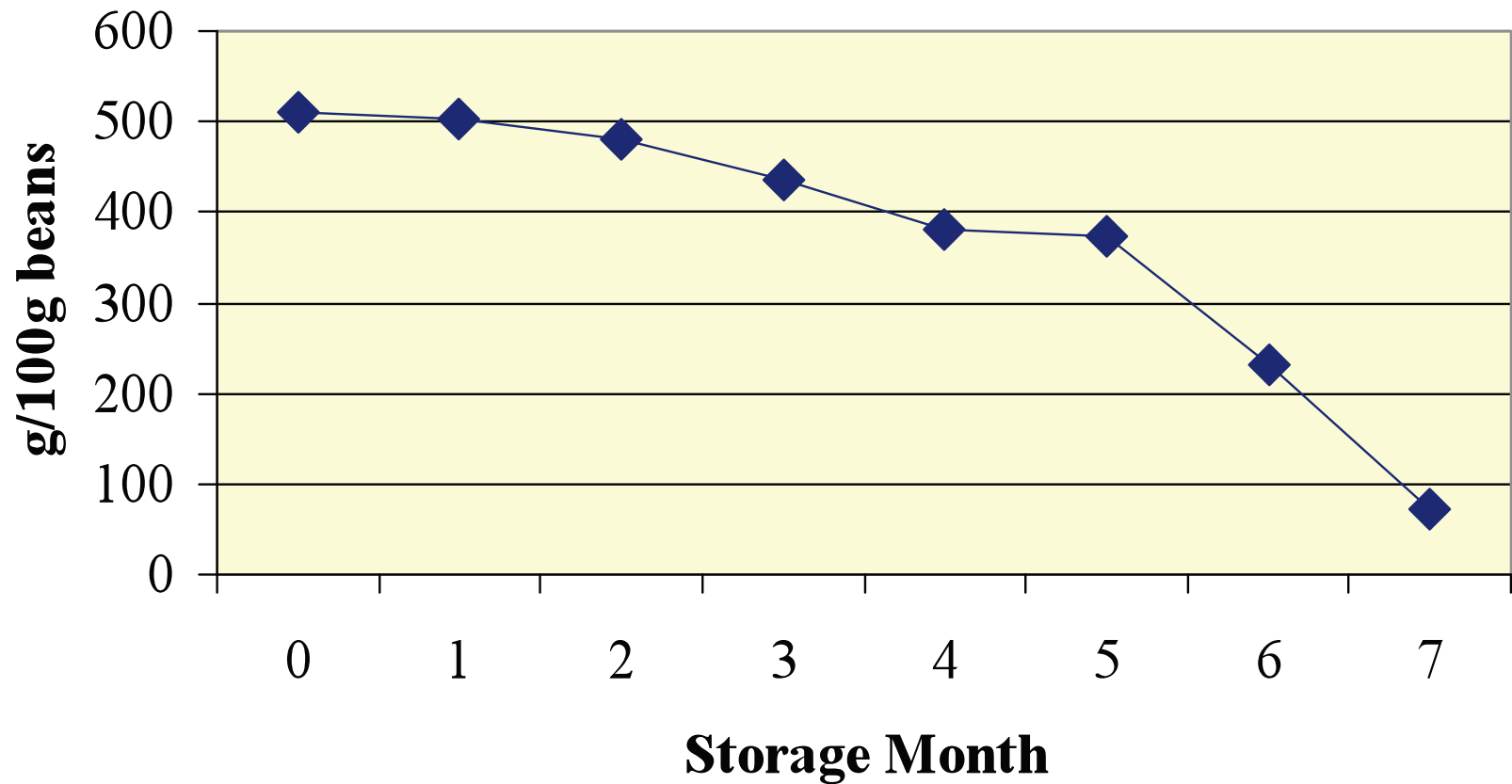
- Soybeans: Cultivar Proto (ND)
- Four storage conditions:
 - Adverse conditions: 84% RH, 30 °C
 - Mild conditions: 57% RH, 20 °C
 - Cold storage: in a walk-in-cooler, 3~4 °C (86% RH)
 - Ambient conditions: in a garage (temperature not controlled)

Storage time

35

- Storage time:
 - 9 months for adverse conditions
 - 18 months for other three conditions

Tofu yield from soybeans stored in 84% RH 30 C



Overall Conclusions on the Effect of Storage on Biochemical effects and Tofu Yield and Quality

58

- Under adverse conditions, soybeans could deteriorate significantly after 2 months.
- Protein solubility and structural changes contributed to the reduction in tofu yield and quality.
- Other factors such as acidity and phytate changes are also important.
- Under mild conditions, soybeans could remain good quality for making tofu for up to 18 months.
- In the US Northern Plain region, soybeans could be kept in the ambient conditions for up to 18 months without damaging its quality for tofu.