HOW MODIFICATIONS IN ETHNIC DIET ALTER DRUG EFFICIENCY IN INDIVIDUALS

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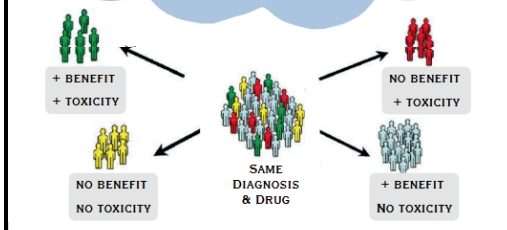
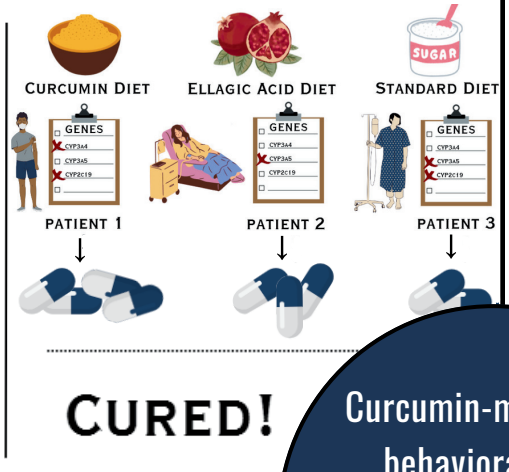
ABSTRACT

How do region-dependent diets affect drug response and sensitivity in individuals?

Hypothesis

If the effect of geographic-specific ingredients in diets, such as turmeric, influences drug efficiency in humans of distinct populations, which will be modeled in Drosophila, then their medical treatments would be altered, because humans are equipped with natural variations in the expression levels of cytochrome P450 alleles, which are further modified by diet. Research question





Curcumin-modulated behavioral drug responses suggest cytochrome P450 upregulation

DATA ANALYSIS

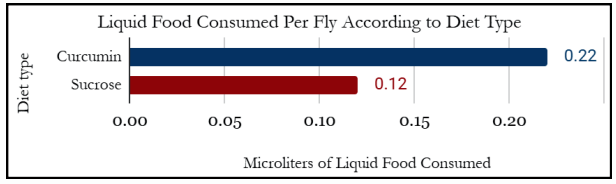
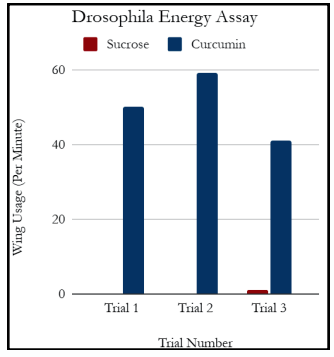


Fig. 1: Mean sucrose and ethanol solution intake per fly. Curcumin-fed flies (CFF) showed an 81.1% increase from the sucrose-fed flies (SFF).

Fig. 2: Energy in Drosophila observed through wing usage per minute. The mean was 50x in the CFF and 0.33x in the SFF.



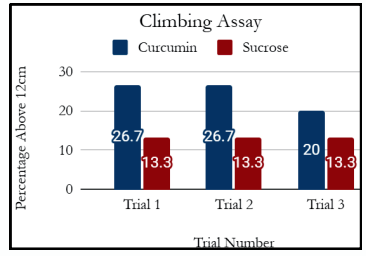


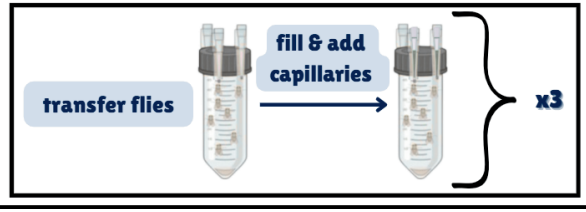
Fig. 3: Climbing activity observed by the percentage of flies above 12cm after 10s. The means were 24.5% and 13.3% for the CFF and SFF, respectively.

METHODOLOGY

Ellagic Acid
Middle East

Curcumin
Asia

6 days later



CONCLUSION

- Curcumin-fed flies have statistically significant increases in food intake, climbing, and energy levels
- Curcumin exposure produced physiological changes aligned with altered metabolism
- Those who eat curcumin may need larger dosages to reach the same therapeutic effectiveness
- Data highlights diet as an important consideration in evaluating drug responses and treatment plans