

Introduction: Kato-Katz thick smear is the standard technique recommended by the World Health Organization for microscopic diagnosis of intestinal helminth infections. In the Kato-Katz technique, glycerin functions as the clearing agent while malachite green (or methylene blue) stains the background against which helminth eggs can be visualized clearly. Although glycerin and malachite green are commercially available, they are fairly costly. Therefore, this study was done to identify cost effective substitutes for use in the local setting.

Methodology: Fecal clearing properties of six different locally available substitutes were compared against the standard agent, glycerin. Clarity of fecal smears for detection of helminth eggs was observed through light microscopy. Four substitute agents with the best clearing properties were then selected: (i) pure castor oil, (ii) pure coconut oil, (iii) castor oil combined with distilled water and methylene blue (100:100:1) and (iv) citronella oil combined with distilled water and methylene blue (100:100:1). Methylene blue was used due to unavailability of malachite green. A stool sample positive for helminth eggs (Sample X) was randomly tested 10 times using the standard Kato-Katz technique and egg counts recorded at 15minute intervals for 3 hours. Similarly, three random tests were done from Sample X using the Kato-Katz technique substituted with each of the four selected test agents and egg counts recorded. Mean helminth egg counts were determined and compared between the standard and substitute agents using the Anova statistical test.

Results: Mean egg counts recorded by the standard Kato-Katz was 21 eggs/smear (range: 16 – 31), while it was 18, 28, 20 and 17 for the four substitute agents (i) - (iv) mentioned above, respectively. No significant differences were observed in the mean egg counts recorded between the standard and substitute agents ($P>0.05$).

Conclusion: Four substitute agents showed good faecal clearing properties and mean egg counts compared to the standard. Pure coconut oil could serve as a cost-effective alternative in the local setting.