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A preliminary study on the antibacterial efficacy of local hand rubs with different ingredients in Sri Lanka

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Introduction and Objectives: Hand hygiene (HH) is one of the key elements of hygiene that prevents the spread of infectious diseases. The aims of this study were to determine the antibacterial efficacy of five randomly selected commercial hand rubs in Sri Lanka and compare their effectiveness with an in-house hand rub formulated according to World Health Organization (WHO) recommendations.

Methods: Five commercially available hand rubs with varied ingredients (labeled P, Q, R, S & T) and an in-house hand rub (labeled W) formulated according to WHO recommended formulation II protocol, were evaluated. Twelve volunteers were trained on WHO recommended HH technique. and randomized into six groups of two each. Each group was allocated one of the six hand rubs to perform HH. Two swabs were collected from 5 cm^2 area of the palm of each individual's right hand before and after applying the hand rub. Serial dilutions in sterile nutrient broth were prepared from the collected swabs and cultured on nutrient agar plates. The mean reduction percentages of colony forming units (CFU%) were determined after applying hand rubs on hands.

Results: The highest antibacterial efficacy was observed in the in-house hand rub W. Hand rub S that differs only by one ingredient (moisturizers) from the WHO recommended formula has the second highest reduction in CFU%. Reduction in % CFU of all the commercial hand rubs was lower than the in-house hand rub.

Table 1. Code, Ingredients and the mean reduction percentage of CFU of each hand rub.

Hand Rub (Code)	Colony count of hands before using rub (CFU/mL)		Colony count of hands after using the rub (CFU/ mL)		Reduction percentage of CFU	
	Individual 01	Individual 02	Individual 01	Individual 02	Individual 01	Individual 02
P	512	371	91	66	82.22	82.21
Q	610	401	81	59	86.72	85.29
R	399	214	82	43	79.45	79.91
S	360	317	32	29	91.11	90.85
T	238	321	39	54	83.61	83.18
W	290	320	17	25	94.14	92.19

Conclusions: Adding ingredients other than the ingredients in WHO recommended formula to hand rubs may have reduced performance of the commercial hand rubs.

Key words: Hand rubs, Ingredients, Antibacterial efficacy

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