



ESwab™ Supports Viability of Clinical Strains of Anaerobes for Extended Times

Santina Castriciano¹, Barbara Massetti¹, Romolo Botrugno¹, Roberto Paroni¹, Laura Conter¹
¹Copan Italia, Brescia Italy
Copan, Italy



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BACKGROUND:

Preservation of anaerobes during transport is a major challenge for the Microbiology laboratory. ESwab™ (Copan Italia, Brescia, Italy) is a Liquid Based Microbiology (LBM) device that consists of a tube with 1.0 ml of liquid Amies medium with a FLOQSwab™. ESwab™ can be used for the collection and preservation of clinical specimens for the detection of bacteria with both manual and WASP™ automation streaking methods.

OBJECTIVE:

The objective of this study was to evaluate the performance of ESwab™ to support the viability and stability of anaerobic bacteria strains during room temperature storage.

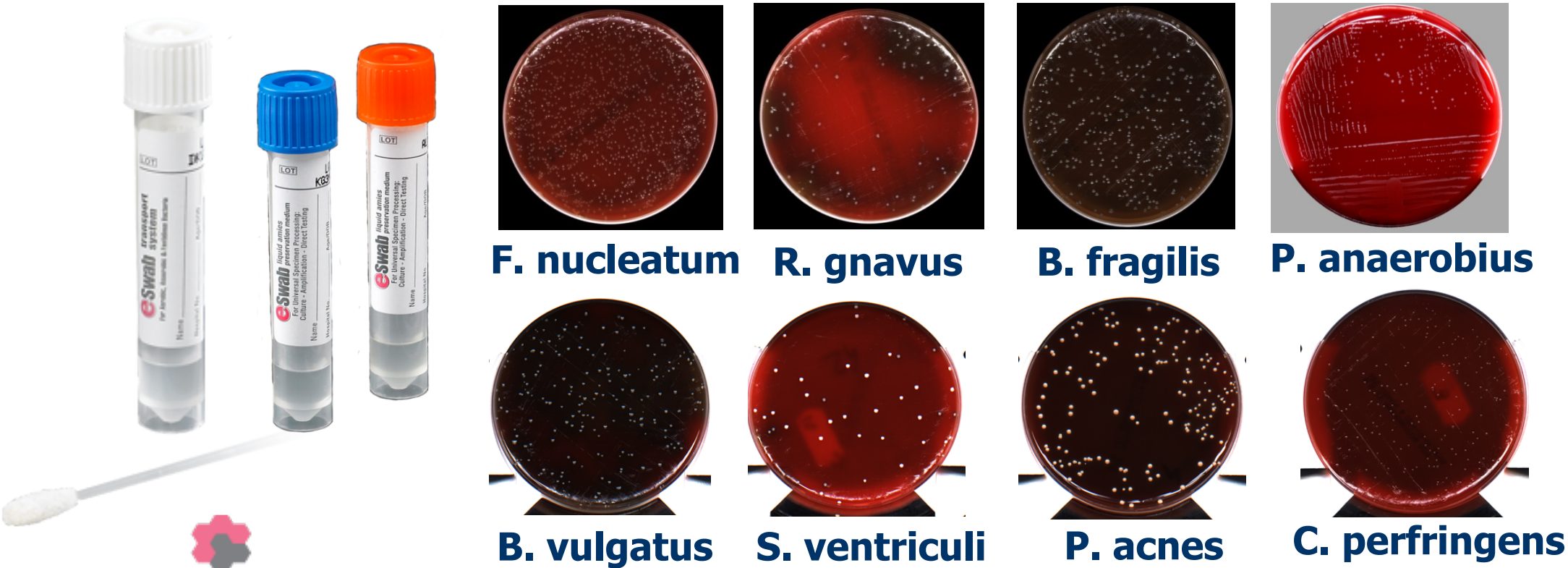
METHODS:

- In this validation 185 clinical anaerobe isolates were used, including 33 bacteria classes, supplied by the Institute of Medical Microbiology (IMM) of the University of Zurich.
- Each bacteria strain was inoculated into an ESwab™ device, shipped at room temperature from Zurich to Copan in Brescia Italy, and received after 1 week.
 - Each strain was first plated on blood agar plates using a 30ul loop using both manual and WASP inoculation methods in order to verify culture viability and purity.
 - Plates were incubated at 37°C under anaerobic condition and read after 48 hours incubation.
 - Using a 1ul loop, a single bacteria colony from the blood culture of each strains was inoculated in an ESwab™ (medium+ flocced swab).
 - After vortexing 30ul from each inoculated ESwab™ were plated on Schaedler agar plates at zero time as baseline and after 24, 48, 72, 96,120 hours, 7 and 14 days at room temperature.
 - Plates were incubated at 37°C under anaerobic condition and read after 48 hours.

#	Clinical Anaerobic Bacteria Classes	Bacterial viability at RT after		
		48 hours	1 weeks	2 weeks
1	<i>Anaerococcus morduchii</i>	GROWTH	GROWTH	GROWTH
2	<i>Anaerococcus octavius</i>	GROWTH	GROWTH	GROWTH
3	<i>Atopovium parvulum</i>	GROWTH	GROWTH	GROWTH
4	<i>Bacteroides fragilis</i>	GROWTH	GROWTH	GROWTH
5	<i>Bacteroides ovatus</i>	GROWTH	GROWTH	GROWTH
6	<i>Bacteroides thetaiotamicron</i>	GROWTH	GROWTH	GROWTH
7	<i>Bacteroides uniformis</i>	GROWTH	GROWTH	GROWTH
8	<i>Bacteroides vulgatus</i>	GROWTH	GROWTH	GROWTH
9	<i>Bilofila wadsworthia</i>	GROWTH	GROWTH	GROWTH
10	<i>Blautia coccoides</i>	GROWTH	GROWTH	GROWTH
11	<i>Clostridium perfringens</i>	GROWTH	GROWTH	GROWTH
12	<i>Ruminococcus gnavus</i>	GROWTH	GROWTH	GROWTH
13	<i>Corinebacterium tubercolostaricum</i>	GROWTH	GROWTH	GROWTH
14	<i>Finelgodia magna</i>	GROWTH	GROWTH	GROWTH
15	<i>Fusobacterium naviforme</i>	GROWTH	GROWTH	GROWTH
16	<i>Fusobacterium necroforum</i>	GROWTH	GROWTH	GROWTH
17	<i>Fusobacterium nucleatum</i>	GROWTH	GROWTH	GROWTH
18	<i>Fusobacterium species</i>	GROWTH	GROWTH	GROWTH
19	<i>Parabacteroides distasonis</i>	GROWTH	GROWTH	GROWTH
20	<i>Parvimonas micra</i>	GROWTH	GROWTH	GROWTH
21	<i>Peptostreptococcus anaerobius</i>	GROWTH	GROWTH	GROWTH
22	<i>Peptostreptococcus magna</i>	GROWTH	GROWTH	GROWTH
23	<i>Peptostreptococcus species</i>	GROWTH	GROWTH	GROWTH
24	<i>Porphiromonas somaree</i>	GROWTH	GROWTH	GROWTH
25	<i>Prevotella bivia</i>	GROWTH	GROWTH	GROWTH
26	<i>Prevotella buccae</i>	GROWTH	GROWTH	GROWTH
27	<i>Prevotella disiens</i>	GROWTH	GROWTH	GROWTH
28	<i>Prevotella nigrescens</i>	GROWTH	GROWTH	GROWTH
29	<i>Prevotella oralis</i>	GROWTH	GROWTH	GROWTH
30	<i>Sarcina ventriculi</i>	GROWTH	GROWTH	GROWTH
31	<i>Propionibacterium acnes</i>	GROWTH	GROWTH	GROWTH
32	<i>Propionibacterium avidum</i>	GROWTH	GROWTH	GROWTH
33	<i>Staphilococcus saccharolitycus</i>	GROWTH	GROWTH	GROWTH

RESULTS

All 185 clinical anaerobes had growth on blood agar after 48 hours. Out of 185 clinical strains, 113 were positive with pure bacteria growth, 51 were positive with less than 50 colonies; while 21 had mixed growth and 4/21 were lost after passaging. The 181 anaerobe clinical strains stored in ESwab™ were positive after 24, 48, 72, 96,120 hours, 7 and 14 days at room temperature.



CONCLUSION

The data obtained in this validation demonstrated that the ESwab™, supports the viability of a wide range of anaerobic bacteria up to 2 weeks storage at room temperature. The Copan ESwab™ is a suitable device for the collection and transportation of clinical specimens for the detection of anaerobic bacteria and can be used with manual and WASP™ and WASPLab™ automated culture streaking.

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