

Actero™ Listeria Enrichment Media¹



Enrichment media performance comparison

An independent Internal validation by
TAAG Genetics

October 2016

¹ The Actero™ Listeria Enrichment Media used for this method is part of the patented “Elite” group of Actero™ enrichment media products



Step 1 Media

TAAG Genetics conducted an independent, internal validation of six different enrichment media to evaluate performance in the recovery of stressed *Listeria monocytogenes* in various food samples.

	Media
1	Actero™ Listeria
2	LEB (BD)
3	24 LEB Complete (Oxoid)
4	LEE (Lab M)
5	TAAG Genetics in-house media 1
6	TAAG Genetics in-house media 2

- 1-5 cfu of *L. monocytogenes* serotype 4b
- 1-5 cfu of stressed *L. monocytogenes* serotype 4b
- 1-5 cfu of stressed *L. monocytogenes* serotype 4b with competitors
- Ready-to-eat matrix with (Lasagna) 1-5 cfu of stressed *L. monocytogenes* serotype 4b with competitors*
- Cheese with 1-5 cfu of stressed *L. monocytogenes* serotype 4b with competitors*
- Ham with 1-5 cfu of stressed *L. monocytogenes* serotype 4b with competitors*

* Competitors were 100 cfu of *Citrobacter braakii*, *Enterobacter cloacae* and *Enterococcus faecalis*.

Step 2 Experimental Conditions

Six experimental conditions were tested.

Step 3 Methods

Two methods were used to evaluate the performance of the media.

1 Listeria count in chromogenic agar

2 In-house PCR Method

All the experiments were performed in three biological replicates and for each one, two technical replicates. The enrichment time was 24 h +/- 2 h and the growth temperature was 37° C.

Step 4 Results

The best results were obtained by using Actero™ Listeria Enrichment Media¹ in terms of the recovery of the stressed target bacteria (with or without competing bacteria).

Media	Experimental Conditions											
	1		2		3		4		5		6	
	Count	PCR	Count	PCR	Count	PCR	Count	PCR	Count	PCR	Count	PCR
1 Actero™ Listeria (FoodChek)	+++	+	+++	+	+++	+		+		+		+
2 LEB (BD)	+	+	+	+	+	-	ND	-		-		-
3 24 LEB Complete (Oxoid)	+++	+	++	+	++	+		+		+		+
4 LEE (Lab M)	+++	+	++	+	++	+		+		+		+
5 TAGG Genetics in-house media 1	++	+	++	+	+	+		+		+		+
6 TAGG Genetics in-house media 2	++	+	++	+	+	-		-		-		-

Quantification of *L. monocytogenes* was not performed in food samples and the results were evaluated by an in-house PCR method.

The L.O.D of the PCR method is 10³-10⁴ cfu/mL and positive results were obtained in four of the six evaluated medias.

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Conclusion

The study conclusion reached by TAAG Genetics was, "The best medium to recover stressed *L. monocytogenes* in different samples is "Actero™ Listeria Enrichment Media by FoodChek Systems Inc.

This media could be very helpful in the enrichment step, when the detection of *L. monocytogenes* requires a high amount of this bacteria (traditional culture or immunoassay detection).

In more sensitive detection methods, like in our in-house PCR method, the results were as good as other three media."



Actero™ Listeria Enrichment Media has AOAC, AFNOR Validations and Health Canada Method Approval

