UNIVERSITA' DEGLI STUDI DI CATANIA

Dipartimento: Dipartimento di Scienze del Farmaco e della Salute

N.	Struttura amministrativo - contabile
4	DSFS

Catania, 14 | 1 | 2026

Al Dirigente A.Fi

Prot. N..	
Alleg.	Richiesta - preventivo
N.rich.	12

a cura dei servizi istituzionali

Id.gest.	cod.contab.	ente
<	20016	40

a cura dei servizi contabili

Oggetto: nota istruttoria n. 12

Struttura richiedente	
Descrizione	
C.R.	Dipartimento di Scienze del Farmaco e della Salute
C.C.	
DOC.	Prof. R. Di Marco
a cura	servizi istituzionali

	La spesa viene imputata :		Finanziam.interno/esterno
	Budget Dipartimento		
	C/ Terzi		
	Progetto:		
	codice Progetto:		
	CUP:		
	Resp.Scientif.:		
x	*Fondi di Ricerca*		x

a cura dei servizi istituzionali

Spesa finalizzata (1):	
	Forniture
	Utenze
X	*Servizi (incluse manut. attrezzature)*
	Missioni
	Contratti co.co.co e occasionali
	Contratti d'insegnamento
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	altro:

Inoltrare le richieste per singola tipologia

(1) Specificare in dettaglio la spesa da sostenere per singola tipologia

interventi	DESCRIZIONE ANALITICA DELLA SPESA	IMPORTO	CODICE CAPITOLO	ES.	Impegno provvisorio	Co.An.
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	MDPI n. invoice 3976414 del 4/01/2026					
	IVA 4% ISSN 2414-6366	208,79				
	Totale	2.818,60				
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X	conosc.
XX	comp.

Direzione amm.va Aree	competenza conoscenza
Direzione amm.va	X
AFI	XX
ARIT	
ACUC	
ADI	
ARI	
ATM	
ACOM	
ARU	
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Tipografia	

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Awoke Minwuyelet, Delenasaw Yewhalaw, Giulio PetronioPetronio, Roberto Di Marco and Getnet Atenafu

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Article

The Effect of Artemether–Lumefantrine Combined with a Single Dose of Primaquine on *Plasmodium falciparum* Gametocyte Clearance and Post-Treatment Infectivity to *Anopheles arabiensis*

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Abstract

Background: Malaria remains a major public health concern in Africa, due to the persistence of *Plasmodium falciparum* gametocytes that sustain transmission post treatment. This study evaluated the effects of artemether–lumefantrine (AL) alone compared with AL combined with a single low-dose of primaquine (SLD-PQ) on gametocyte clearance and infectivity to *Anopheles arabiensis* post treatment. Methods: A prospective cohort and entomological study were conducted from January to September 2025 in Northwest Ethiopia. Ninety-six microscopically confirmed cases of *P. falciparum* gametocytemia mono-infection were proportionally assigned to both treatment groups. Follow-up assessments were conducted on days 3, 7, 14, and 28, and mixed-species infections were assessed using molecular diagnostic assays. Additionally, membrane feeding assays (MFAs) were performed to evaluate mosquito infectivity post treatment. Results: Gametocyte prevalence declined faster with AL + SLD-PQ (15.2% on day 3; 0% by day 7) compared to AL alone (28.9% on day 3: $p = 0.001$; 12.2% by day 7: $p = 0.033$). Higher baseline gametocyte density strongly predicted mosquito infection (95% in high vs. 59% moderate and 33% low). On day 3 post treatment, 28.6% of cases treated with AL only showed confirmed mosquito infection, compared to 6.8% in the AL + SLD-PQ group ($p = 0.001$). By day 7, 7.3% of cases remained infectious in the AL-only group, while none were detected in the AL+ SLD-PQ group ($p = 0.01$). Conclusions: High baseline gametocyte density strongly correlated with increased infectivity. Adding SLD-PQ markedly accelerates gametocyte clearance and completely blocks post-treatment transmission. Submicroscopic gametocytemia contributed to residual transmission in the AL-only group. Incorporation of SLD-PQ alongside AL, in line with WHO recommendations, is advised to enhance post-treatment transmission blocking, with continued surveillance.

Keywords: *Plasmodium falciparum*; gametocytemia; artemether-lumefantrine; primaquine; infectivity; membrane feeding assays; *Anopheles arabiensis*

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