**Title:** The study flow diagram, study result summary and MTBDR*plus V2.0* and MTBDR*sl V2.0* drug-susceptibility testing results of LJ-culture-positive *M.tuberculosis* strains isolated from individuals with PTB symptoms who attended HWSs in Amhara region, Ethiopia (n=122), 2019-2020.

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Total number of attendees screened for PTB symptoms at nine HWSs (n=10,313)

Total number of PTB symptomatic participants (n=560)

WH (n=36)

EG (n=25)

Awi (n=22)

NW (n=107)

SG (n=105)

NS (n=97)

CG (n=30)

SW

(n=100)

WG (n=38)

Bacteriologically confirmed cases (LJ culture positive (n=122))

n=5

n=22

n=28

n=33

n=4

n=2

n=2

n=4

n=22

GenoType®MTBDR*plus* v2.0 (n=122)

RIF-r=1

INH-r=1

MDR=1

RIF-r=8, INH-r=9

INH-MR=1, MDR=8

RIF-r=0

INH-r=0

RIF-r=0

INH-r=0

RIF-r=3

INH-r=3

MDR=3

RIF-r=1, INH-r=1

MDR=1

RIF-r=2, INH-r=6

INH-MR=4, MDR=2

RIF-r=0

INH-r=0

RIF-r=0

INH-r=0

***Figure 1:*** *Study population and study flow diagram*

***Note: NW****: North Wollo;* ***SW****: South Wollo;* ***NS****: North Showa;* ***SG****: South Gondar;* ***WG****: West Gojjam;* ***CG****: Central Gondar;* ***Awi****: Awi zone;* ***EG****: East Gojjam;* ***WH****: Wag-Himra;* ***LJ:*** *Lowenstein-Jensen;* ***PTB****: Pulmonary tuberculosis;* ***RIF-r****: Rifampicin-resistance;* ***INH-r****: Isoniazid-resistance;* ***INH-MR:*** *Isoniazid-monoresistance;* ***MDR****: Multidrug-resistance;* ***SL****: Second-line;* ***FLQ-r:*** *Fluoroquinolone-resistance.*

GenoType®MTBDR*sl* v2.0 (n=20)

Resistance to SL (0)

Resistant to SL (0)

Resistant to SL (0)

Resistant to SL (0)

Resistant to SL

FLQ-r (5)

**Summary Table (a)**: Geographical location of the study area (zones), spiritual HWSs, and the number of individuals screened for PTB suggestive symptoms and enrolled participants in each study site, and LJ culture results, Amhara region, Ethiopia, 2019-2020.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S. No | Study area (zones) | Holy water site  (HWS) | The total number of attendees screened for PTB symptoms | Total number of anticipated PTB symptomatic attendees to be recruited | Total number of participants (individuals with symptoms of PTB) | Bacteriologically confirmed PTB cases  (LJ culture positive) | Culture negative case |
| 1 | North Wello | *Urael* | 1458 | 75 | 107 | 22 | 85 |
| 2 | South Wello | *Amanual* | 1601 | 75 | 100 | 22 | 78 |
| 3 | North Shewa | *Tsadkane Mariam* | 3221 | 75 | 97 | 33 | 64 |
| 4 | South Gondar | *Fogera -Arsema* | 1201 | 75 | 105 | 28 | 77 |
| 5 | Central Gondar | *Teklehymanot* | 820 | 75 | 30 | 2 | 28 |
| 6 | Awi zone | *Ashewa Medihanealem* | 530 | 75 | 22 | 2 | 20 |
| 7 | West Gojam | *Zera-biruk* | 471 | 75 | 38 | 4 | 34 |
| 8 | Wag Hamra | *Gihorgis* | 543 | 75 | 36 | 5 | 31 |
| 9 | East Gojam | *Washa-Giyorgis* | 468 | 75 | 25 | 4 | 21 |
|  | **Total** | | **10,313** | **675** | **560** | **122** | **438** |
| *NB: HWS: Holy water site; PTB: Pulmonary tuberculosis; LJ: Löwenstein-Jensen.* | | | | | | | |

**Summary Table (b):** Laboratory results (LJ culture-positive, drug susceptibility profile, and drug resistance-conferring gene mutations) of *M.tuberculosis* strains isolated from individuals with PTB symptoms who attended HWS in Amhara region, Ethiopia, 2019-2020 (n=122).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **Sample ID** | **Isolation zone** | **Drug resistance pattern** | | | | **Drug resistance-conferring gene mutations (MUT/WT)** |
| **Any anti-TB drug-resistant (RIF and/or INH)** | **RIF and INH (r/s)** | **MDR** | **FLQ-resistance (R/S)** |
| 1 | NW62 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 2 | NW63 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 3 | NW75 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 4 | NW76 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 5 | NW77 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 6 | NW78 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 7 | NW79 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 8 | NW80 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 9 | NW81 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 10 | NW82 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 11 | NW83 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 12 | NW84 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 13 | NW85 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 14 | NW87 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 15 | NW88 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 16 | NW89 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 17 | NW90 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 18 | NW91 | North Wello | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L) & Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 19 | NW94 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 20 | NW99 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 21 | NW102 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 22 | NW107 | North Wello | S | INHs, RIFs | NO | S | **-** |
| 23 | SW02 | South Wello | R | INHr, RIFr | YES | R | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed) & *kat*GMUT1 (present), *kat*GMUT1 (S315T1); Δ*gyr*AWT3 (missed), *gyr*AMUT3A (present), Asp94Ala (D/A) |
| 24 | SW23 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 25 | SW30 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 26 | SW43 | South Wello | R | INHr, RIFr | YES | S | *Δrpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); *Δkat*GWT (Missed), *kat*GMUT1 (Present), *kat*GMUT1 (S315T1). |
| 27 | SW49 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 28 | SW61 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 29 | SW62 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 30 | SW63 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 31 | SW64 | South Wello | S | INHs, RIFs | NO | S |  |
| 32 | SW65 | South Wello | S | INHs, RIFs | NO | S |  |
| 33 | SW67 | South Wello | R | INHra, RIFs | NO | S | Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1) |
| 34 | SW69 | South Wello | R | INHr, RIFr | YES | R | *Δrpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1); *Δgyr*AWT3 (missed), *gyr*AMUT3A (present), Asp94Ala (D/A). |
| 35 | SW70 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 36 | SW73 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 37 | SW80 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 38 | SW84 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 39 | SW86 | South Wello | R | INHr, RIFr | YES | R | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1); Δ*gyr*AWT3 (missed), *gyr*AMUT3A (present), Asp94Ala (D/A). |
| 40 | SW90 | South Wello | S | INHs, RIFs | NO | S | **-** |
| 41 | SW91 | South Wello | R | INHr, RIFr | YES | R | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (Present), *kat*GMUT1 (S315T1), Δ*gyr*AWT3 (missed), *gyr*AMUT3A (present), Asp94Ala (D/A). |
| 42 | SW94 | South Wello | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1) |
| 43 | SW97 | South Wello | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 44 | SW100 | South Wello | R | INHr, RIFr | YES | R | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (Missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1); Δ*gyr*AWT3 (missed), *gyr*AMUT3A (present), Asp94Ala (D/A). |
| 45 | NS13 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 46 | NS14 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 47 | NS15 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 48 | NS16 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 49 | NS17 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 50 | NS18 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 51 | NS19 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 52 | NS20 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 53 | NS21 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 54 | NS22 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 55 | NS23 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 56 | NS24 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 57 | NS25 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 58 | NS27 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 59 | NS33 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 60 | NS39 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 61 | NS44 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 62 | NS46 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 63 | NS48 | North Showa | R | INHrb, RIFr | YES | S | Δ*rpo*BWT7 (missed), Δ*kat*GWT (present) *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 64 | NS49 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 65 | NS50 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 66 | NS54 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 67 | NS58 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 68 | NS60 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 69 | NS63 | North Showa | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 70 | NS64 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 71 | NS65 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 72 | NS69 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 73 | NS70 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 74 | NS72 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 75 | NS73 | North Showa | R | INHr, RIFr | YES | S | Δ*rpo*BWT7 (missed), *rpo*BMUT2A (present), *rpo*BMUT2A (H526Y); Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 76 | NS74 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 77 | NS75 | North Showa | S | INHs, RIFs | NO | S | **-** |
| 78 | SG01 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 79 | SG02 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 80 | SG03 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 81 | SG16 | South Gondar | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kta*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 82 | SG35 | South Gondar | R | INHr, RIFr | YES | S | Δ*rpo*BWT8 (missed), *rpo*BMUT3 (present), *rpo*BMUT3 (S531L); Δ*kta*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 83 | SG36 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 84 | SG37 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 85 | SG61 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 86 | SG62 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 87 | SG64 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 88 | SG83 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 89 | SG87 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 90 | SG88 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 91 | SG89 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 92 | SG92 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 93 | SG93 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 94 | SG94 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 95 | SG95 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 96 | SG96 | South Gondar | S | INHs, RIFs | NO | S | **-** |
| 97 | SG97 | South Gondar | R | INHra RIFs | NO | S | Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 98 | SG98 | South Gondar | R | INHra RIFs | NO | S | Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 99 | SG99 | South Gondar | R | INHra RIFs | NO | S | Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 100 | SG100 | South Gondar | R | INHra RIFs | NO | S | Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 101 | SG101 | South Gondar | S | INHs, RIFs | NO | S | - |
| 102 | SG102 | South Gondar | S | INHs, RIFs | NO | S | - |
| 103 | SG103 | South Gondar | S | INHs, RIFs | NO | S | - |
| 104 | SG104 | South Gondar | S | INHs, RIFs | NO | S | - |
| 105 | SG105 | South Gondar | S | INHs, RIFs | NO | S | - |
| 106 | CG02 | Central Gondar | S | INHs, RIFs | NO | S | **-** |
| 107 | CG21 | Central Gondar | S | INHs, RIFs | NO | S | **-** |
| 108 | AZ21 | Awi zone | S | INHs, RIFs | NO | S | **-** |
| 109 | AZ22 | Awi zone | S | INHs, RIFs | NO | S | **-** |
| 110 | WG23 | West Gojjam | S | INHs, RIFs | NO | S | **-** |
| 111 | WG28 | West Gojjam | S | INHs, RIFs | NO | S | **-** |
| 112 | WG31 | West Gojjam | R | INHr, RIFr | YES | S | Δ*rpo*BWT6, 8 (missed), Δ*kat*GWT (missed), *kat*GMUT1 (present), *kat*GMUT1 (S315T1). |
| 113 | WG35 | West Gojjam | S | INHs, RIFs | NO | S | - |
| 114 | EG08 | East Gojjam | S | INHs, RIFs | NO | S | - |
| 115 | EG16 | East Gojjam | S | INHs, RIFs | NO | S | - |
| 116 | EG20 | East Gojjam | S | INHs, RIFs | NO | S | - |
| 117 | EG24 | East Gojjam | S | INHs, RIFs | NO | S | - |
| 118 | WH17 | Wag-Himra | S | INHs, RIFs | NO | S | - |
| 119 | WH21 | Wag-Himra | S | INHs, RIFs | NO | S | - |
| 120 | WH27 | Wag-Himra | S | INHs, RIFs | NO | S | - |
| 121 | WH30 | Wag-Himra | S | INHs, RIFs | NO | S | - |
| 122 | WH35 | Wag-Himra | S | INHs, RIFs | NO | S | - |

***NB****:* ***FLQ****: Fluoroquinolone;* ***HWS****: Holy water site;* ***INH****: Isoniazid;* ***INHs****: Isoniazid-sensitive;* ***INHr****: Isoniazid-resistant;* ***LJ****: Löwenstein-Jensen;* ***MDR****: Multidrug-resistant;* ***MUT****: Mutant;* ***PTB****: Pulmonary tuberculosis;* ***R****: Resistant;* ***RIF****: Rifampicin;* ***RIFr****: Rifampicin-resistance;* ***RIFs****: rifampicin-sensitive;* ***S****: Sensitive;* ***WT****: Wild-type.*