European Journal of Clinical Pharmacy
Print ISSN: 2385-409X **Online ISSN**: Applied Website:
https://farmclin.com/

Post-Marketing Survey and In-Vitro Validation of Muliv (Tablet and Syrup) for Liver Disorders in India: A Cross-Sectional Real-World Study with Mechanistic Corroboration

(Short title: Muliv in Liver Disorders: Real-World Evidence and Mechanistic Validation)

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ABSTRACT

Background:

Liver disorders including NAFLD, AFLD, and jaundice are prevalent and clinically burdensome. Muliv is an Ayurvedic, polyherbal hepatoprotective formulation used in Indian clinical practice, yet structured post-marketing evidence and mechanistic corroboration are limited.

Objectives:

To assess Indian practitioners' real-world Experiences of Muliv's efficacy, safety, dosage and duration across common hepatic disorders; and to triangulate those Experiences with in-vitro anti-inflammatory activity (TNF-α) in a HepG2 model.

Methods:

A survey involving 175 practitioners highlighted their Experiences regarding efficacy and safety, as well as dosage and duration, in relation to hepatic disorders. An independent in-vitro study using HepG2 cells with palmitic acid at 100 µM assessed cytotoxicity through MTT and measured TNF-α expression via qRT-PCR using the 2^−ΔΔCT method. A cross-sectional survey involving 175 registered medical practitioners (BAMS, BHMS, MBBS) evaluated Muliv in cases of NAFLD, AFLD, jaundice, hepatitis, and anorexia. The findings were presented in a descriptive manner. In an independent in-vitro study (Radiant Research Services, 2025), Muliv Strong Syrup and Muliv Strong Tablet were evaluated in HepG2 cells with palmitic acid (PA, 100 µM). Cytotoxicity (MTT) and TNF-α expression (qRT-PCR) were assessed at non-toxic doses (250–500 µg/mL), using dexamethasone (10 µg/mL) as a control.

Results:

In NAFLD, physicians evaluated Muliv as Excellent/Very Good/Good in 81% of cases and frequently recommended 2 tablets or 2 tablespoons of syrup, twice daily for a duration of 16 to 30 days for symptomatic improvement In NAFLD, physicians assessed Muliv's performance as Excellent 17% / Very Good 23% / Good 41% / Medium 16% / Below average 3%; the majority suggested 2 tablets or 2 tablespoons of syrup, taken twice daily for a duration of 16–30 days for symptomatic improvement. In HepG2 cells, both formulations exhibited no toxicity at concentrations ranging from 250 to 500 µg/mL (CTC50 ≈ 1016–1018 µg/mL). In response to the PA challenge, TNF-α decreased from 1.01 ± 0.16 (PA) to 0.69 ± 0.12 (Syrup 500 µg/mL) and 0.89 ± 0.25 (Tablet 500 µg/mL), which is similar to the level observed with dexamethasone at 0.70 ± 0.09. In HepG2, TNF-α decreased from 1.01 ± 0.16 (PA) to 0.69 ± 0.12 (Syrup 500 µg/mL), approximately matching dexamethasone at 0.70 ± 0.09, while maintaining non-toxic viability at active concentrations.

Conclusions:

Insights from practicing physicians indicate that Muliv is generally well accepted and provides clinical benefits, particularly in cases of NAFLD. The HepG2 PA-model illustrates the suppression of TNF-α by Muliv, serving as a mechanistic link to inflammation-driven liver pathology. Observations in real-world settings correspond with the suppression of TNF-α observed in vitro. Systematic evaluations are necessary. Muliv tablets and syrups are polyherbal Ayurvedic formulations, comparable to leading brands/competitors, and are noted for their benefits in enhancing liver function parameters, particularly in cases of Non-Alcoholic Fatty Liver Disease (NAFLD) and jaundice. Key liver parameters demonstrate improvement, including: Alanine aminotransferase (ALT) / Serum glutamic pyruvic transaminase (SGPT), Aspartate aminotransferase (AST) / Serum glutamic oxaloacetic transaminase (SGOT), Total Bilirubin and Direct Bilirubin, Alkaline Phosphatase (ALP) and Gamma-glutamyl transferase (GGT). Additionally, patients often report enhancements in clinical symptoms such as appetite loss and nausea, along with reductions in hepatomegaly (liver enlargement), and improvements in liver fat content and fibrosis scores, assessed through non-invasive techniques like Fibroscan or specific biomarkers.

KEYWORDS: Muliv; Ayurveda; NAFLD; AFLD; Jaundice; TNF-α; HepG2; Post-marketing survey; Andrographolide; Picrosides.

How to Cite: Shubham Saxena, Vipin Kataria, (2025) Post-Marketing Survey and In-Vitro Validation of Muliv (Tablet and Syrup) for Liver Disorders in India: A Cross-Sectional Real-World Study with Mechanistic Corroboration, European Journal of Clinical Pharmacy, Vol.7, No.1, pp. 4565-4575

INTRODUCTION

Metabolic dysfunction-associated steatotic liver disease (MASLD; previously known as NAFLD) is now the favored terminology following a 2023 multi-society Delphi consensus that clarified definitions and highlights the importance of metabolic risk enhancement (1). Expert recommendations from AASLD and the 2024 EASL–EASD–EASO guideline emphasize the importance of non-invasive fibrosis staging alongside thorough cardiometabolic risk management (2, 3). The overall prevalence worldwide is approximately 25–30%, showing significant variation across different regions and increasing trends over time (4). Pathogenesis involves multiple factors: hepatic insulin resistance, heightened adipose lipolysis, and de-novo lipogenesis (SREBP-1c/ChREBP) contribute to steatosis; mitochondrial/ER stress and dysbiosis-derived LPS activate TLR4→NF-κB and JNK signalling, leading to the propagation of cytokines like TNF-α and IL-6 (5). This inflammatory lipotoxic environment encourages the activation of stellate cells through TGF-β/Smad pathways and leads to the deposition of extracellular matrix, resulting in fibrosis (6, 7). Given the interconnection of these axes, agents that influence inflammation, oxidative stress, lipid management, and fibrogenesis present themselves as appealing complements—aligning well with Muliv's polymedicinal plant design. Muliv Strong is an Ayurvedic tablet produced by Multani Pharmaceuticals Limited, aimed at promoting liver health. The tablets feature a combination of traditional Ayurvedic herbs, such as Kalmegh, Kasni, Punarnva, Bhuiamla, Bhringraj, Kutki, and Haritaki. These herbs are utilized for addressing liver ailments, reducing fever, and cleansing the blood. Muliv Strong is designed to support liver function and detoxification, address liver-related conditions such as jaundice and hepatitis, enhance appetite, purify the blood, and treat hepatic disorders and liver dysfunction. The suggested intake is 1 to 2 tablets each day, typically taken after meals along with warm milk or water to enhance absorption. The manufacturer recommends regular use for a minimum of 2 to 3 months to achieve the best outcomes. No specific side effects have been noted for Muliv Strong; however, it is advisable to use the medication with medical oversight. Individuals with diabetes need to exercise caution, as certain types of the medication might include sugar. It is recommended to seek guidance from a healthcare professional prior to use, particularly if you are pregnant, breastfeeding, or have any pre-existing medical conditions. Muliv is also strongly advised to be used in conjunction with other Western (allopathic) medicines, as certain Ayurvedic herbs may interact with them. Consequently, there is a necessity for the survey to develop a more effective approach concerning the use of Muliv tablet and syrup among the beneficiaries under the supervision of medical experts. Therefore, a need of the survey arises through which a better approach can be established regarding the use of Muliv tablet and syrup among the beneficiaries under the medical expert's supervision.

MATERIALS AND METHODS

In vitro Assay

A study conducted at Radiant Research Services Pvt. Ltd. in Bangalore involved Liver cell lines like HepG2 cells treated with palmitic acid (PA) and tested with Muliv Strong Syrup and Muliv Strong Tablet. Cytotoxicity was measured using MTT assay and CTC50, and TNF-α was quantified using qRT-PCR. The study aimed to assess the effects of PA on HepG2 cells and the potential of Muliv Strong Syrup in modulating inflammatory cytokines like TNF-α. TNF-α plays critical role in the pathogenesis of nonalcoholic steatohepatitis (NASH) and NAFLD-associated fibrosis, and may potentiate hepatic insulin resistance, and accelerate hepatocyte damage

Post Marketing survey design and setting

In this study, a survey has been made regarding the efficacy, dosage and duration of the Muliv tablet uses for NAFLD, AFLD, Jaundice, Hepatitis and Anorexia. In this survey, a questionnaire was prepared for the 175 registered ayurvedic practitioners from the densely populated cities of all over the India prescribing the Muliv for the treatment of NAFLD, AFLD, Jaundice, Hepatitis and Anorexia. Outcomes: perceived efficacy (5-point scale), safety/tolerability, dose and duration. Statistics: descriptive summaries (percentages).

RESULT AND DISCUSSION

In vitro Assay

The CTC50 values were 1018.214 µg/mL for Syrup and 1015.662 µg/mL for Tablet. At 1000 µg/mL, viability was 74.73 ± 4.86% for Syrup and 68.81 ± 3.35% for Tablet. In terms of anti-inflammatory activity, TNF-α relative expression increased under PA (100 µM) to 1.01 ± 0.16. Co-treatment with Muliv Syrup reduced expression to 0.69 ± 0.12, closely matching dexamethasone (10 µg/mL). Muliv Tablet reduced expression to 0.89 ± 0.25 (Table 1; Figure 1).

Table 1: In-vitro TNF-α Expression in HepG2 Cells (Radiant Research 2025)

Treatment	Concentration	TNF-α Expression (Mean ± SD)
Cell control	--	0.38 ± 0.042
Palmitic Acid (PA)	100 µM	1.01 ± 0.161
PA + Dexamethasone	10 µg/mL	0.70 ± 0.097
PA + Muliv Syrup	500 µg/mL	0.69 ± 0.126
PA + Muliv Syrup	250 µg/mL	0.83 ± 0.319

PA + Muliv Tablet	500 µg/mL	0.89 ± 0.254
PA + Muliv Tablet	250 µg/mL	0.97 ± 0.233

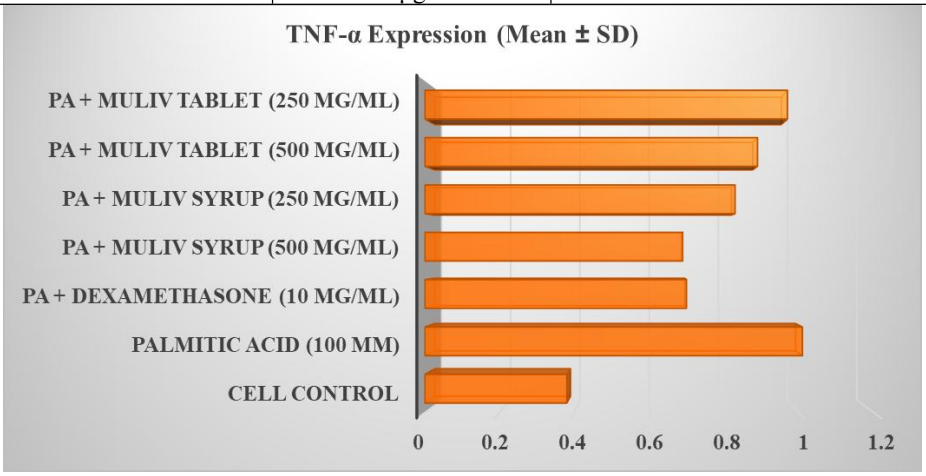

Figure 1: In-vitro TNF-α Expression in HepG2 Cells (Radiant Research 2025)

Use of Muliv Tablets and Syrup for the Management of Non Alcoholic Fatty Liver Disease (NAFLD)

Obesity, insulin resistance, and metabolic syndrome are frequently associated with Non-Alcoholic Fatty Liver Disease (NAFLD), a liver disorder marked by fat buildup. The rising rates of obesity and diabetes have made this more prevalent which affects over 25% of the world's population, a huge public health problem. It is also the most frequent kind of chronic liver disease in Western countries. Metabolic diseases such as obesity, type 2 diabetes, dyslipidaemia, and hypertension are intimately linked to NAFLD (8, 9). Although NAFLD can strike anybody at any weight, people with excess body fat or type 2 diabetes are at increased risk. Damage to the liver, inflammation, and scarring (fibrosis) are all possible outcomes. Liver inflammation and damage occur in around 30% of individuals with NAFLD who go on to develop NASH. Cirrhosis, a severe scarring disease, develops in around 20-30% of NASH patients and can cause liver failure and malignancy (10, 11). Figure 2 shows that out of 175 RMPs who prescribed Muliv for NAFLD, 41% placed its safety and effectiveness rate in the "Good" category, with 23% rating it very good, 17% rated excellent, 16% medium, and 3% below average. Figure 3 shows the recommended dosage of two tablets daily for 16 to 30 days, whereas Figure 4 shows the recommended dosage for syrup, which is two tablespoons twice daily (Figure 5).

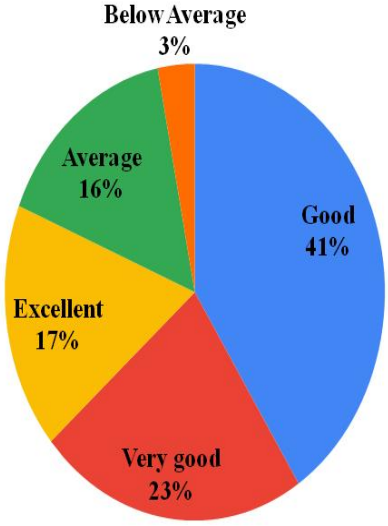

Figure 2: % Rating of Efficacy and Safety of Muliv in the cases of NAFLD

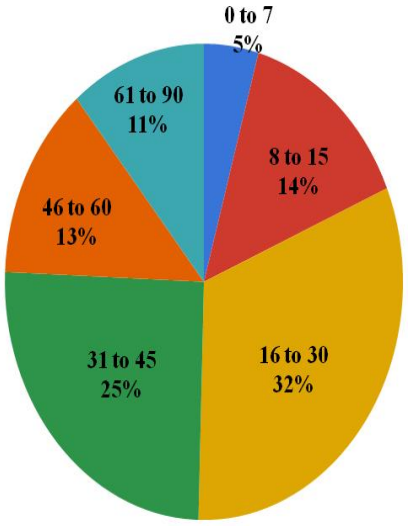

Figure 3: % Rating of Duration of Treatment (in Days) of Muliv in the cases of NAFLD

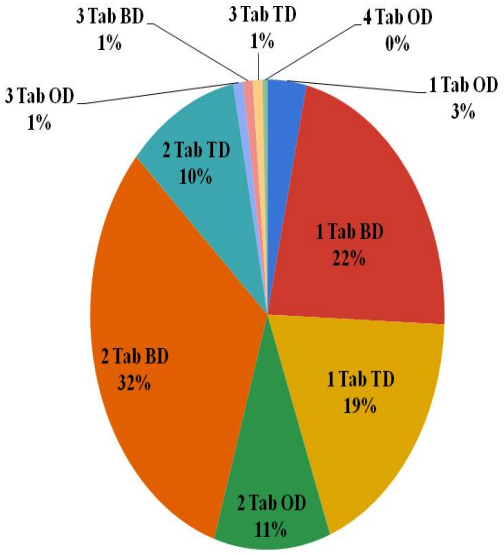

Figure 4: % Rating of Preferred Dosage (Tablets in a day) of Muliv in the cases of NAFLD

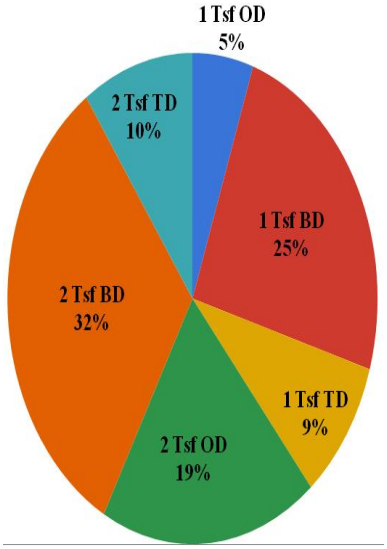

Figure 5: % Rating of Preferred Dosage (Syrup in a day)of Muliv in the cases of NAFLD

Use of Muliv Tablets for the Treatment of Alcoholic Fatty Liver Disease (AFLD)

Both NAFLD and AFLD are progressive liver diseases that share comparable pathological phases. Excessive alcohol intake causes AFLD, whereas metabolic disorders including diabetes and obesity are linked to NAFLD. Inflammation, fibrosis, cirrhosis, and even cancer of the liver can develop in these disorders, which begin with simple fat buildup. Imaging, medical history, symptoms, and laboratory testing are the cornerstones of a diagnosis. The treatment for AFLD is to stop drinking, and for NAFLD it is to improve one's lifestyle, especially one's eating habits and weight. Reversing the course of Alcoholic Fatty Liver Disease (AFLD), which is characterised by regular and excessive alcohol consumption, is possible if one quits drinking, particularly in the early stages (12-14) Losing weight, eating a diet full of fruits, vegetables, whole grains, and healthy fats, cutting back on processed foods, sugary beverages, and simple sugars, and exercising regularly are all part of the treatment plan. Serious complications including cirrhosis, liver failure, and cancer of the liver can develop from either disease. It is essential to control alcohol use and metabolic risk factors since the prognosis might be worsened when AFLD and NAFLD are present together. The intricate relationship between one's way of life, metabolism, and liver health is illustrated by the fact that new treatments are in the works for both disorders, and that both diabetes and obesity can exacerbate alcoholic liver disease (15, 16). According to the RMP, Muliv Tablet and Syrup are both considered "Good" for the treatment of Alcoholic Fatty Liver Disease (AFLD) (Figures 6 and 7). The recommended dosage for the tablets is 2 tablets twice daily (Figure 8), and for the syrup, it is 2 tablespoons twice daily (Figure 9). The recommended duration of treatment is 18 to 30 days.

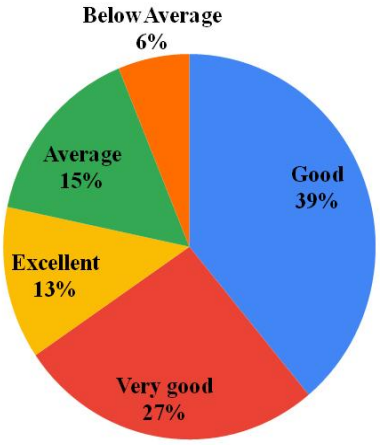

Figure 6: % Rating of Efficacy and Safety of Muliv in the cases of AFLD

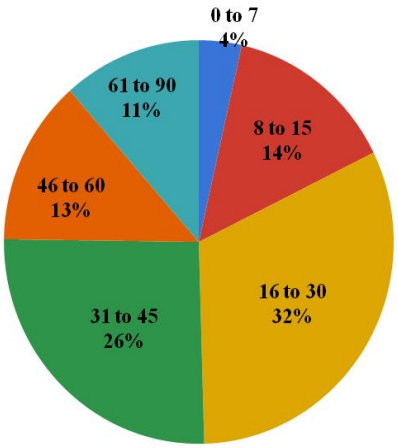

Figure 7: % Rating of Duration of Treatment (in Days) of Muliv in the cases of AFLD

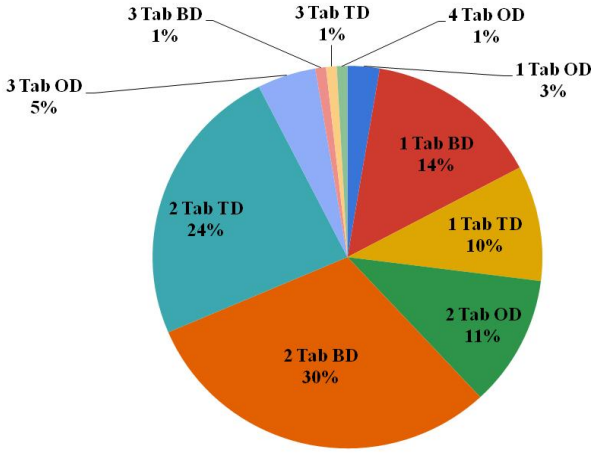

Figure 8: % Rating of Preferred Dosage (Tablets in a day)of Muliv in the cases of AFLD

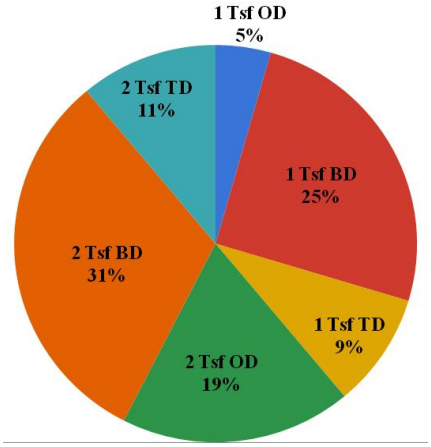

Figure 9: % Rating of Preferred Dosage (Syrup in a day)of Muliv in the cases of AFLD

Use of Muliv Tablets for the Treatment of Jaundice

High blood bilirubin levels cause jaundice, which manifests as yellowing of the skin, eyes, and mucous membranes. Multiple medical issues, including infections, biliary tract or pancreatic tumours, certain drugs, and haemolytic anaemia, can lead to this illness. Proper care of jaundice requires detection of its underlying aetiology, which may be categorised into pre-hepatic, hepatic, and post-hepatic types. Loss of weight, nausea, vomiting, diarrhoea, itching, fever, chills, and skin and eye yellowing are some of the symptoms. Haemolytic anaemia, hepatitis, sepsis, malignancies of the biliary system or pancreas, and several medicines are among the possible causes (17–20). The recommended dosage for jaundice therapy, according to medical experts, is 2 pills or 2 tablespoons of syrup taken twice daily for 16-30 days (Figure 10-13).

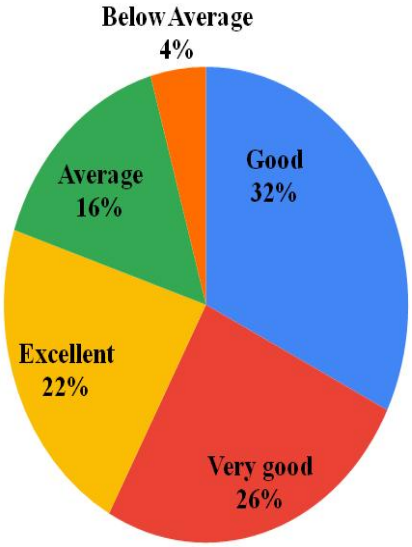

Figure 10: % Rating of Efficacy and Safety of Muliv in the cases of Jaundice

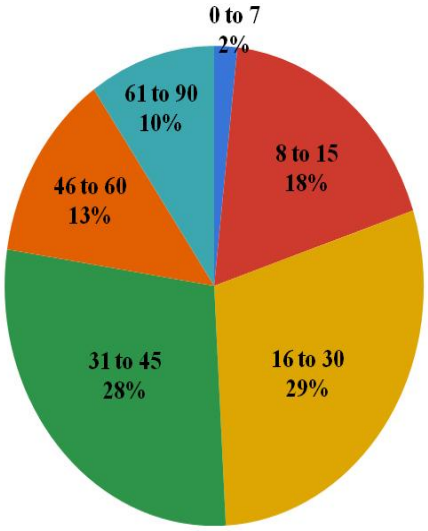

Figure 11: % Rating of Duration of Treatment (in Days) of Muliv in the cases of Jaundice

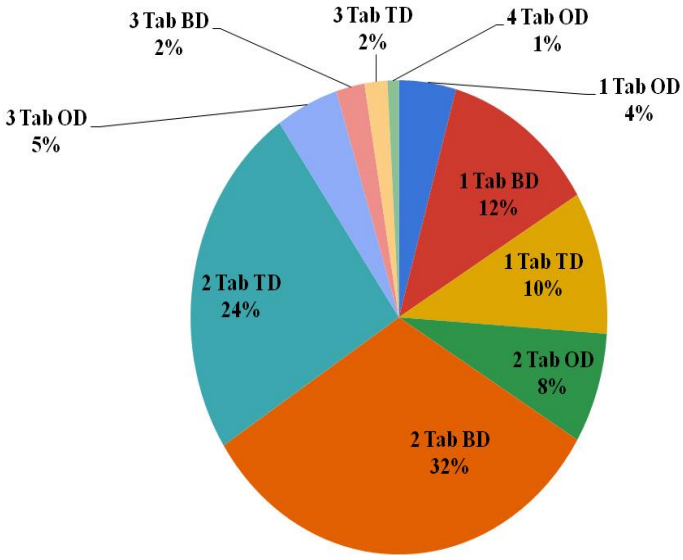

Figure 12: % Rating of Preferred Dosage (Tablets in a day) of Muliv in the cases of Jaundice

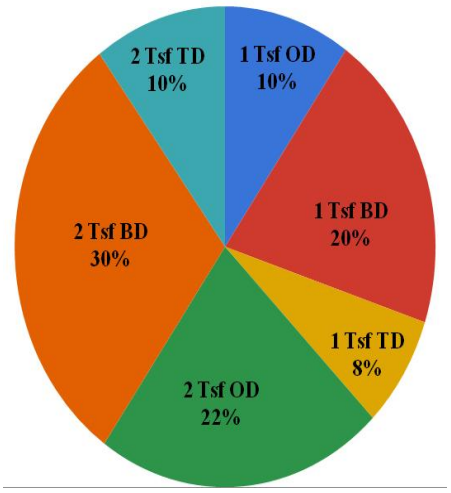

Figure 13: % Rating of Preferred Dosage (Syrup in a day) of Muliv in the cases of Jaundice

Correlation of Post-Marketing, Pharmacological, and In-vitro Evidence

The recommended dosage and duration of therapy for NAFLD, AFLD, and Jaundice are 2 tablets or 2 tbsp syrup twice daily, 16-30 days for symptomatic improvement, with a safety rating of well tolerated. The therapy is safe and well-tolerated, with a duration of 18-30 days (Table 2). The study found that Muliv, a medication used to treat NAFLD, AFLD, and jaundice, has a strong therapeutic benefit and patient tolerability. Muliv tablets and syrups are polyherbal Ayurvedic formulations, comparable to other leading brands, and are noted for their benefits in enhancing liver function parameters, particularly in cases of Non-Alcoholic Fatty Liver Disease (NAFLD) and jaundice. Key liver parameters demonstrate improvement, including: Alanine aminotransferase (ALT) / Serum glutamic pyruvic transaminase (SGPT), Aspartate aminotransferase (AST) / Serum glutamic oxaloacetic transaminase (SGOT), Total Bilirubin and Direct Bilirubin, Alkaline Phosphatase (ALP) and Gamma-glutamyl transferase (GGT). In-vitro validation confirmed its anti-inflammatory action, strengthening the basis for physician prescribing confidence (Table 3).

Table 2: Recommended Dosage and Duration of Therapy (Based on Clinical Experience)

Condition	Dosage (Tablet/Syrup)	Frequency	Duration (days)	Safety Rating
NAFLD	2 tablets or 2 tbsp syrup	Twice daily	16–30	Safe / Well tolerated
AFLD	2 tablets or 2 tbsp syrup	Twice daily	18–30	Safe / Well tolerated
Jaundice	2 tablets or 2 tbsp syrup	Twice daily	16–30	Safe / Well tolerated

Table 3: Correlation of Post-Marketing, Pharmacological, and In-vitro data

Evidence Type	Parameter	Key Finding	Mechanistic/Clinical Correlation
Post-Marketing Survey (n=175)	Physician efficacy rating	81% rated Muliv as Good–Excellent in NAFLD/AFLD/Jaundice	Indicates real-world therapeutic benefit and patient tolerability
Pharmacological Data	Key bioactives	Andrographolide, Picroside I/II, Punarnavine, Wedelolactone	TNF-α suppression, antioxidant activity
In-vitro Validation (HepG2 assay)	TNF-α gene expression	Reduction from 1.01 ± 0.16 (PA) to 0.69 ± 0.12 (Muliv Syrup 500 µg/mL)	Confirms anti-inflammatory activity at molecular level
Integrative Conclusion	Combined impact	Molecular–clinical synergy supports hepatoprotective role	Strengthens basis for physician prescribing confidence

Modulation of ROS and GSH Levels

Muliv Strong Syrup and Tablet effectively counteract palmitic acid-induced oxidative stress in HepG2 cells, with the syrup showing superior antioxidant activity, supporting their potential as therapeutic agents for liver-related conditions like NAFLD and MAFLD (Table 4; Figure 14).

Table 4: Modulation of ROS Levels

Test Items	Concentration	Relative Fluorescence levels
Cell control	--	35491.00 ± 198.65
Palmitic acid	100µM	52301.67 ± 592.44
PA+Vitamin C	150µM/mL	37031.33 ± 394.00
	100µM/mL	40312.00 ± 394.87
PA+Muliv Strong Syrup	500µg/mL	39958.00 ± 436.18
	250µg/mL	40336.00 ± 545.66
PA+Muliv Strong Tablet	500µg/mL	42032.67 ± 469.15
	250µg/mL	49087.33 ± 543.84

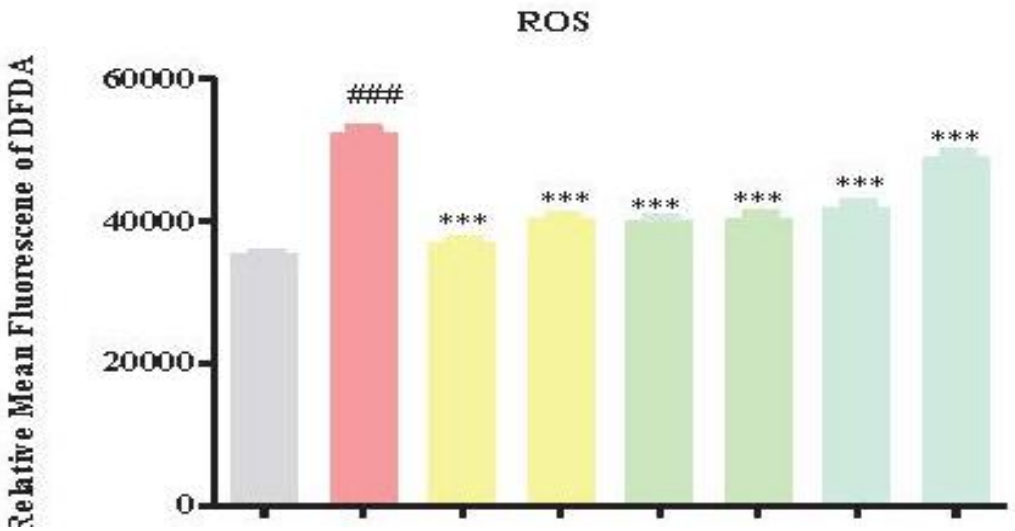

Figure 14: Modulation of ROS Levels

Muliv Strong Syrup and Tablet effectively counteract palmitic acid-induced oxidative stress in HepG2 cells, with the syrup showing superior antioxidant activity, supporting their potential as therapeutic agents for liver-related conditions like NAFLD and MAFLD (Table 5; Figure 15).

Table 5: Modulation of GSH Levels

Test Item	Concentration	GSH in µmol/10^9 (Average ± SD)
Cell control	--	3.26 ± 0.18
Palmitic acid	100µM	1.53 ± 0.74
PA+ Vitamin C	150µM/mL	4.84 ± 0.10
	100µM/mL	3.24 ± 0.11
PA+ Muliv Strong Syrup	500µg/mL	4.73 ± 0.15
	250µg/mL	1.40 ± 0.12
PA+ Muliv Strong Tablet	500µg/mL	3.92 ± 0.14
	250µg/mL	1.08 ± 0.08

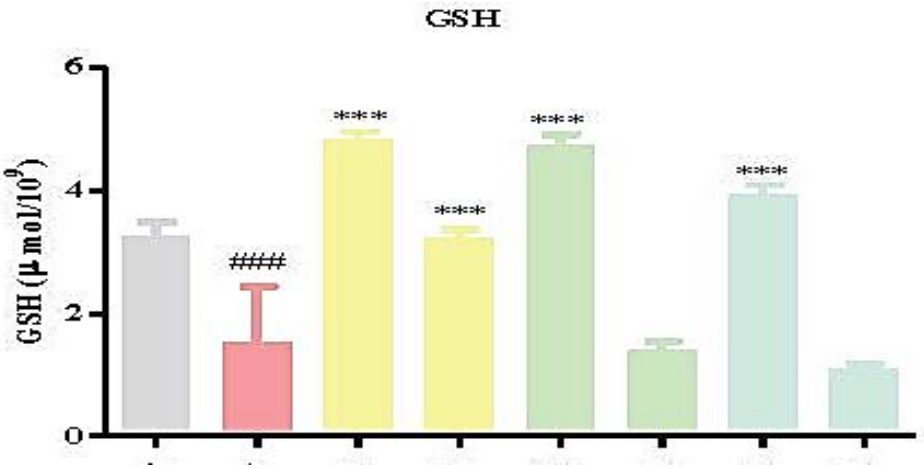

Figure 15: Modulation of GSH Levels

Expected Mechanism of Action of Content of Muliv Tablet and Syrup which is responsible for its Pharmacological Action

Key findings: Physicians' real-world impressions regarding the efficacy and tolerability in NAFLD align with in-vitro suppression of PA-induced TNF-α at non-toxic concentrations (Table 6).

Table 6: Expected Mechanism of Action of Content of Muliv Tablet and Syrup which is responsible for its Pharmacological Action

S.No.	Content	Botanical Name and Chemical Content	Mechanism of Action
1.	Kalmegh	Andrographis paniculata; andrographolide	Inhibits NF-κB/TLR4 signalling and engages AMPK-linked lipid pathways; in high-fat diet models and steatosis cell systems, andrographolide reduces lipogenesis (↓SREBP-1c/PPARγ) and fatty-acid uptake through FATP2 down-regulation (21).
2.	Kutki	Picrorhiza kurroa; picrosides I/II	A powerful source of antioxidant and anti-inflammatory iridoids; translational reviews highlight enhancements in enzyme activity and anti-steatotic effects observed in preclinical models pertinent to fatty liver (22).

3.	Bhuiamla	Phyllanthus niruri; phyllanthin/hypophyllanthin	Bio-guided fractionation and multi-model reviews highlight hepatocellular cytoprotection, antioxidant effects, and normalisation of enzymes; genus-level data encompass NAFLD/MASH models (23).
4.	Punarnava	Boerhavia diffusa; boeravinones/punarnavine	Exhibits antioxidant and anti-inflammatory properties, along with noted anti-fibrotic effects; reviews on natural-product anti-fibrotic agents emphasise the modulation of stellate-cell TGF-β/Smad pathways (24).
5.	Bhringraj	Eclipta alba; wedelolactone	Shows protective effects in models of high-fat and toxic injury; wedelolactone modulates the FXR–bile-acid–NF-κB/NRF2 pathways in cholestatic injury (25).
6.	Kasni	Cichorium intybus	Preliminary studies indicate potential enhancements in liver enzymes and lipid profiles in NAFLD, although variability remains (26).
7.	Haritaki	Terminalia chebula; chebulic/chebulinic acids	Notable polyphenolic antioxidants; chebulic acid stimulates Nrf2 and subsequent cytoprotective enzymes in HepG2, whereas chebulinic acid demonstrates in-vivo hepatoprotection (27).

These mechanisms correspond with our in-vitro finding that Muliv suppresses PA-induced TNF-α at non-toxic concentrations and with physicians' real-world impressions from the post-marketing survey. Constraints: Survey subjectivity and the absence of centralised patient-level biochemistry; HepG2/PA models represent only a portion of MASLD biology, and gene expression does not equate to outcomes. Nevertheless, the reduction of TNF-α holds significant mechanistic importance (Figure 16).

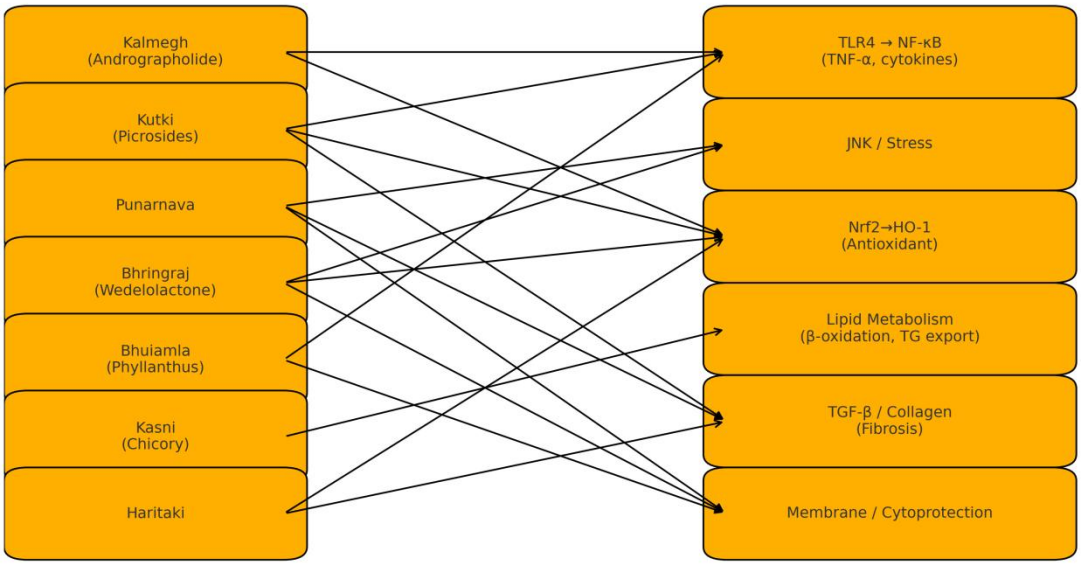

Figure 16: Expected Mechanism of Action of Content of Muliv Tablet and Syrup which is responsible for its Pharmacological Action

CONCLUSION

Multani Pharmaceuticals Limited's Muliv Strong is an Ayurvedic medicine that promotes healthy liver function. Kalmegh, Kasni, Punarnva, Bhuiamla, Bhringraj, Kutki, and Haritaki are some of the ancient Ayurvedic herbs used in this mix. These herbs are used to cure liver problems, fever, and blood purification. The pills should be taken once day, preferably after food. It should be taken for at least two to three months to get the best benefits. It should be used under a doctor's supervision because it does not have any known negative effects. Additionally, those who are pregnant, nursing, or have any pre-existing medical issues should talk to their doctor before using this product. Patients with type 2 diabetes have an increased risk of non-alcoholic fatty liver disease (NAFLD), which can impact both overweight and slim people. Liver failure and cancer are outcomes of cirrhosis, a severe scarring condition. The safety and effectiveness of Muliv were rated as "Good" by 175 certified medical practitioners who suggested taking 2 pills twice a day for 16-30 days. Serious complications such as cirrhosis, liver failure, and cancer can develop from either Alcoholic Fatty Liver Disease (AFLD) or Nonalcoholic Fatty Liver Disease

(NAFLD). Weight loss, a balanced diet, sugar restriction, and frequent exercise are all part of the treatment plan. In order to improve prognosis, it is essential to control metabolic risk variables and alcohol use separately. Obesity and diabetes can exacerbate alcoholic liver disease, and new treatments are in the works for both disorders. The recommended dosage for NAFLD and AFLD according to RMP is 2 pills twice day for 16-30 days. High amounts of bilirubin cause yellowing of the skin, eyes, and mucous membranes, a condition known as jaundice. Haemolytic anaemia, infections, malignancies of the biliary system or pancreas, and certain drugs can all lead to this condition. Variants can be categorised as pre-hepatic, hepatic, or post-hepatic. Itching, high body temperature, nausea, vomiting, diarrhoea, and loss of weight are some of the symptoms. Two pills or two tablespoons of syrup, taken twice day for sixteen to thirty days, is the recommended dosage for therapy. Based on the survey results, the recommended dosage of Muliv Tablet and Syrup for NAFLD, AFLD, and jaundice is 2 tablets or 2 tablespoons of syrup taken twice daily for 16-30 days. Muliv appears well-tolerated and clinically useful in routine practice and demonstrates mechanistic plausibility via modulation of NF-κB/TNF-α, oxidative stress, lipid metabolism, and pro-fibrotic signaling. Being an Medicinal Plant based product and having lesser side effects, Muliv is competitively marking its presence in the Indian market and also proves to a better option among the available liver protecting formulations in the market and also one of the most recommended regimens by the medical practitioners for treatment of liver related ailments.

DECLARATIONS

Ethics: Physician survey without patient identifiers; IEC details to be added if available.
Informed consent: Obtained from all participating physicians.
Funding: To be declared.
Conflict of Interest: None declared.
Data availability: Aggregated survey data on request; in-vitro raw data archived by the testing laboratory.

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