

واگرایی معرفت‌شناختی میان استحاله فقهی و دگرگونی شیمیایی در پرتو داوری عرف و علوم تجربی

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چکیده

اطلاعات مقاله

هدف: این جستار به واکاوی ریشه‌های معرفت‌شناختی تمایز میان برداشت فقهی از قاعده استحاله به مثابه یکی از مطهرات شرعی و تبیین تجربی آن در دانش شیمی می‌پردازد تا سرچشمه چالش‌های فقهی معاصر در تطبیق احکام بر پدیده‌های نوین صنعتی را تبیین کند.

روش: پژوهش حاضر با رویکردی توصیفی، تحلیلی و مقایسه‌ای سامان یافته و با بهره‌گیری از منابع اصیل فقه امامیه، آرای اصولی متقدمان و متاخران، و مبانی علوم طبیعی به بازخوانی کارکرد عرف عام در برابر سنجه‌های تجربی و آزمون‌پذیر پرداخته است.

یافته‌ها: یافته‌های پژوهش نشان می‌دهد که فقیهان دگرگونی را بر پایه داوری عرف عام و تبدل نام و عنوان موضوع سامان می‌دهند، در حالی که علوم تجربی دگرگونی را بر پایه ساختار مولکولی و تغییرات بنیادی در پیوندهای شیمیایی تعریف می‌کنند. تفکیک میان عرف عام مستقل و عرف عام متأثر از نگاه کارشناسی، پلی شناختی برای پیوند این دو دیدگاه فراهم می‌آورد. در وضعیت‌های شک و تعارض داده‌های علمی، کاربرست اصول عملیه به ویژه استصحاب بقای نجاست یا قاعده طهارت، نظام استنباط فقهی را در مسائل مستحدثه مانند زلاتین، الکل صنعتی و اسید سیتریک تخمیری هدایت می‌کند. **نتیجه‌گیری:** واگرایی میان این دو ساحت، برآمده از ماهیت اعتباری و هنجاری فقه در برابر سرشت واقع‌گرایانه علوم تجربی است؛ از این رو تبدل کامل معیار عرف به معیارهای صرفاً آزمایشگاهی، با منطق تشریح همخوانی ندارد، بلکه انضمام تدریجی و غیرمستقیم داده‌های علمی در بستر عرف عمومی، راهگشای حل تعارضات معاصر خواهد بود.

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۱. مقدمه و تبیین مسئله

استحاله در فقه اسلامی به عنوان یکی از مهم‌ترین مطهرات، ناظر به دگرگونی بنیادینی است که در پی آن، حقیقت و صورت نوعیه یک شیء نجس‌العین یا متنجس زایل گشته و به ماهیتی کاملاً دیگر مبدل می‌شود. این عنوان از دیرباز در ابواب طهارت، اطعمه و اشربه جایگاهی بنیادین داشته و بر این اصل استوار است که با دگرگونی موضوع، حکم تابع آن نیز دگرگون می‌گردد. در فقه سنتی، نمونه‌های ملموسی همچون خاکستر شدن چوب، تبدیل سگ به نمک در نمکزار، یا دگرگونی شراب به سرکه، ملاک تحقق استحاله شمرده می‌شد. با این حال، با گسترش شتابان علوم زیستی، صنایع شیمیایی و سنتزهای آزمایشگاهی نوین، تبیین ماهیت اشیاء دچار دگرگونی شگرفی شده است.

در جهان معاصر، تبدیل‌های بنیادین در سطح مولکول‌ها و ترکیبات ریزاتمی رخ می‌دهد، در حالی که ظاهر فیزیکی ماده ممکن است تفاوت محسوسی نشان ندهد. این امر فقهای معاصر را در برابر پرسشی خطیر قرار داده است: آیا معیارهای فقهی استحاله باید به نتایج میکروسکوپی و شیمیایی واگذار شود یا همچنان بر مدار تشخیص عرف عمومی باقی بماند؟

مبنای معرفت‌شناختی فقیهان در باب استحاله بر قاعده اصولی معروفی استوار است که بیان می‌دارد احکام دائرمدار عناوین و اسامی هستند. نصوص روایی معتبر، از جمله موثقه عبید بن زراره از امام صادق (علیه السلام) پیرامون سرکه شدن خمر، بر این نکته تصریح دارد که هرگاه عنوان و اسم خمر زایل گردد، حرمت و نجاست آن نیز مرتفع می‌شود. با این حال، علم شیمی دگرگونی ماده را بر اساس تغییر در ساختار مولکولی، چینش اتم‌ها، شکستن پیوندها و ایجاد خواص فیزیکی و شیمیایی نوین بدون توجه به نام‌گذاری‌های زبانی تعریف می‌کند. این گسست ادراکی، سرآغاز واگرایی ژرف میان دآوری عرفی در فقه و سنجه‌های عینی در علوم تجربی به شمار می‌آید.

۲. روش‌شناسی پژوهش

این تحقیق از روش‌شناسی توصیفی، تحلیلی و مقایسه‌ای اجتهادی بهره برده است. در ساحت فقهی، با تکیه بر متون استدلالی متقدمان و متاخران فقه امامیه، سیر تاریخی و تکامل مفاهیم پیرامون حقیقت شرعیه و عرفیه استحاله، مفاهیم هم‌افق مانند انقلاب، استهلاک و انتقال واکاوی شده است. همچنین اقوال بزرگانی نظیر شیخ طوسی، علامه حلی، شهید اول، شهید ثانی، فاضل هندی، محقق قمی، شیخ انصاری، سید محمدکاظم یزدی، سید ابوالقاسم خویی، امام خمینی و مراجع معاصر مورد بررسی دقیق فقهی قرار گرفته است.

در ساحت علوم تجربی، سازوکارهای دگرگونی بنیادین ماده در سطوح چهارگانه دگرگونی شیمیایی، دگرگونی فیزیکی، دگرگونی زیستی و دگرگونی هسته‌ای با تمرکز بر پیوندهای بین‌مولکولی و ساختار ماده تحلیل شده است. چارچوب مقایسه‌ای پژوهش بر مبنای تحلیل تفاوت‌های شناخت‌شناختی میان ادراک برآمده از حس و عرف در برابر داده‌های ابزارمحور و تحلیلی آزمایشگاهی پایه‌ریزی شده است. این روش‌شناسی توانسته است نسبت میان موضوع‌شناسی تجربی و استنباط فقهی را به گونه‌ای روشمند شفاف سازد.

۳. یافته‌ها و تحلیل‌های بنیادین

تحلیل‌های انجام‌شده در این پژوهش چندین یافته اساسی را در حوزه مطالعات تطبیقی فقه و علم نمایان ساخته است:

نخست، مرجعیت انحصاری عرف عام در برابر عرف خاص: بررسی منابع اصیل فقهی نشان می‌دهد که جمهور فقها معیار تحقق استحاله را بر دوش عرف عام نهاده‌اند و اعتبار عرف خاص یا نگاه موشکافانه اهل فن را به عنوان معیار مستقل نفی کرده‌اند. فقیه برجسته‌ای چون سید خویی با افزودن قید «ولو عرفاً» روشن می‌سازد که مقصود از زوال صورت نوعیه، زوال آن در نگاه عرف و اذهان متداول است، نه بر اساس دقت‌های عقلی یا محاسبات فیزیکی و شیمیایی. وحید بهبهانی نیز تصریح می‌کند که ملاک در درک موضوعات احکام شرعی، باور و فهم عمومی مردم است نه شکل‌های نخبگانی و تخصصی.

دوم، تمایز میان عرف عام مستقل و عرف عام متأثر از تخصص: برای برون‌رفت از تعارض میان علم و فقه، این پژوهش مدل دو لایه‌ای از عرف ارائه می‌دهد: نخست، «عرف عام مستقل» که در آن انسان با تکیه بر حواس پنج‌گانه ظاهری مانند رنگ، بو، طعم و بافت، زوال موضوع پیشین را درمی‌یابد (همچون خاکستر شدن چوب). دوم، «عرف عام متأثر از تخصص» که موضوع به سادگی برای حواس قابل مشاهده نیست (مانند سنتز ترکیبات دارویی یا هیدرولیز پروتئین‌ها)؛ در این سطح، تخصص علمی به عنوان ابزار کشف و طریقت عمل می‌کند، اما تثبیت دگرگونی ماهیت و نام‌گذاری نهایی همچنان بر عهده ارتکاز عرفی باقی می‌ماند.

سوم، تمایز میان نجاست ذاتی و نجاست عرضی در استحاله متنجسات: یکی از مباحث محوری، جریان استحاله در اشیای متنجس است. دیدگاهی که به فاضل هندی، محقق قمی و

نراقی نسبت داده شده بر آن است که نجاست متنجس به جسمیت و ماده پایدار آن عارض می‌شود، لذا با تغییر صورت نوعیه، نجاست سوار بر ماده زایل نمی‌گردد. در برابر، شیخ انصاری، سید حکیم و محمدتقی آملی این تمایز را به چالش کشیده و نشان داده‌اند که در نگرش عرف، موضوع متنجس پس از خاکستر شدن یا دگرگونی ریشه‌ای کاملاً منتفی می‌شود و هیچ دلیلی بر بقای حکم بر جسمیت انتزاعی وجود ندارد.

چهارم، مطالعه عینی نمونه‌های صنعتی معاصر: در بررسی مصادیق عینی، تفاوت دیدگاه‌های فقها در تطبیق استحاله آشکار است:

الف) ژلاتین: هیدرولیز کلاژن پوست و استخوان حیوانات تذکیه نشده، در علم شیمی تغییر ساختاری بزرگی تلقی می‌شود؛ اما در فقه، مراجعی نظیر آیت‌الله خامنه‌ای و آیت‌الله سیستانی به دلیل بقای شک در تحقق استحاله کامل عرفی، جانب احتیاط یا استصحاب نجاست را برگزیده‌اند، در حالی که برخی دیگر دگرگونی فراورده‌های نوین را مشمول استحاله دانسته‌اند.

ب) الکل صنعتی: از آنجا که الکل‌های صنعتی غالباً از مشتقات نفتی و بدون تخمیر مسکر تولید می‌شوند، خروج موضوعی از عنوان خمر دارند و بر پایه قاعده اولیه طهارت، پاک شناخته می‌شوند.

ج) اسید سیتریک تخمیری: به عنوان یک تبدیل بیوشیمیایی، نیازمند تأیید آزمایشگاهی زوال ماده اولیه است تا با اشراف عرف، عنوان جدید بر آن صادق آید.

پنجم، جایگاه اصول عملیه در موارد شک: در مواردی که نظر کارشناسان دچار تعارض شود یا دگرگونی شیمیایی نتواند عرف را به تبدل عنوان قانع سازد، فقه از استصحاب بقای نجاست یا قاعده طهارت بهره می‌جوید. استصحاب در مواردی که حالت سابقه مسلم نجاست وجود دارد حاکم است، و قاعده طهارت در شبهات موضوعیه بدوی بدون سابقه قطعی به کار گرفته می‌شود.

۴. نتیجه‌گیری و افق‌های فقهی

پژوهش حاضر به این فرجام می‌رسد که واگرایی میان استحاله فقهی و دگرگونی شیمیایی ریشه در تفاوت بنیادین ماهیت دو ساحت دارد. فقه دانشی اعتباری، هنجاری و ناظر به تکالیف مکلفان در زیست روزمره است و از این رو نمی‌تواند پیرو تحلیل‌های بی‌پایان آزمایشگاهی باشد که برای عموم مردم غیرقابل دستیابی است. در نقطه مقابل، شیمی به کشف واقعیت‌های فیزیکی فارغ از دلالت‌های هنجاری می‌پردازد.

تلاش برای تبدیل کامل ملاکات فقهی به داده‌های آزمایشگاهی، نادیده گرفتن جایگاه تشریعی عرف است. با این حال، تعامل سازنده از رهگذر ورود تدریجی و غیرمستقیم یافته‌های علمی به آگاهی عمومی امکان‌پذیر است. هرگاه دانش علمی درباره یک پدیده صنعتی در اثر آموزش و آگاهی بخشی به بخشی از فهم مشترک جامعه بدل شود، عرف نیز در نام‌گذاری و تلقی خود از شیء تجدیدنظر خواهد کرد و در نتیجه، هماهنگی کامل میان فتوای فقهی و واقعیت علمی بدون گسست از سنت‌های اجتهادی تحقق خواهد یافت.

Epistemic Divergence between Jurisprudential Istihalah and Chemical Transformation

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ABSTRACT

Objective: This article investigates the conceptual divergence between the jurisprudential understanding of Istihalah (transformation) as a purifying agent in Islamic law and its empirical conceptualization in modern experimental sciences, specifically chemistry, in order to identify the epistemological roots of contemporary legal challenges.

Method: A comparative analytical methodology is employed, drawing upon classical and contemporary Shiite jurisprudential sources alongside the scientific framework of chemical transformation. The analysis focuses on the role of Urf (common custom/perception) as the arbiter of legal transformation in contrast to empirically verifiable scientific criteria.

Findings: The study reveals that jurists rely on Urf (changes in nomenclature and essence) to identify transformation, whereas experimental sciences utilize measurable parameters (molecular structure, energy states, and chemical properties). We argue that the distinction between "independent common custom" (Urf-e-Am-e-Mustaqil) and "expert-influenced common custom" (Urf-e-Am-e-Karshnas-Aludeh) can effectively bridge this cognitive gap. In scenarios of expert uncertainty, the presumption of continuity of impurity (Istishab al-Najasah) and the principle of purity (Qa'idat al-Taharah) play key roles. Empirical examinations of case studies such as gelatin, industrial alcohol, and fermented citric acid highlight substantial divergences among contemporary jurists, underscoring the necessity of systematizing both conservative and permissive approaches.

Results: Contemporary challenges arise from the absence of a systematic methodology to integrate scientific advancements with customary perception, rather than logical fallacies in jurisprudential reasoning. The epistemic divergence is fundamental; attempting to "scientize" Istihalah by completely substituting Urf with chemical criteria misconstrues its normative and legal essence. Through "indirect incorporation" (the gradual infiltration of scientific knowledge into common custom via education and public discourse), a robust practical alignment can be achieved without discarding classical jurisprudential tenets.

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1. Introduction

The concept of Istihalah — the fundamental transformation wherein the intrinsic nature (haqiqah) and species form (surah naw'iyah) of a substance are replaced — occupies a central position in Islamic jurisprudence, particularly within the domains of ritual purity (taharah) and dietary regulations (at'imah wa asharibah). Istihalah is recognized as a purifying agent (mutahhir) that cleanses inherently impure substances (najis al-ayn) or contaminated objects (mutanajjis) when a complete qualitative change takes place.

Today, empirical testing and experimental methodologies are increasingly applied across various Islamic scholarly fields, including contemporary Quranic studies and the paleographic discovery of original, authentic Quranic manuscripts (Rezaei Esfahani & Karimi, 1404 Sh). On the other hand, the rapid acceleration of chemical and biological sciences in the contemporary era has presented unprecedented challenges to jurists tasked with applying this medieval legal concept to modern industrial manufacturing, synthetic chemical materials, and highly complex biochemical transformations.

The jurisprudential definition of Istihalah has been articulated with remarkable consistency by prominent scholars across centuries. The author of *al-Urwah al-Wuthqa*, Seyyed Mohammad Kazem Yazdi, defines it directly as "the transformation of the essence of a thing and its species form into another form" (Al-Yazdi, 1409 AH, Vol. 1, p. 132). Seyyed Khoei adds the critical, far-reaching qualification of "walaw 'urfan" — "even if only from a customary perspective" — which demonstrates that the legal determinations of material transformation are not purely ontological, but are instead socially constructed realities (Al-Khoei, 1418 AH, Vol. 4, p. 148).

The epistemological foundation of Istihalah in jurisprudence rests upon a simple yet highly profound interpretive principle: "al-ahkam tadur ma'a al-asma" — legal rulings revolve around and follow names (Al-Ansari, 1428 AH, Vol. 3, p. 301). When the name applied to a substance changes in public perception, the corresponding religious ruling — whether of ritual impurity (najasah) or prohibition (hurmah) — is necessarily abated. This principle is explicitly confirmed in the

authentic (muwatha'ah) narration of Ubayd ibn Zurarah from Imam al-Sadiq (peace be upon him) regarding wine that has turned into vinegar: "idha tahawwala 'an ismi al-khamr fala ba'sa bih"—when its name has changed from wine, there is no objection to it (Al-Khoei, 1418 AH, Vol. 4, p. 165).

Nevertheless, this custom-based criterion generates acute tension when confronted with the empirical standards of modern chemistry. In experimental sciences, material transformation is determined not by public perception or linguistic nomenclature, but rather by measurable, reproducible, and verifiable evidence of structural change at the molecular or atomic level.

2. Literature Review

Several articles have been written on topics closely related to this article, view will be mentioned:

Fatwa debate on porcine derivatives in vaccine from the concept of physical and chemical transformation (istihalah) in islamic jurisprudence and science by Hehsan et al (2020). The paper discusses the issues of using haram substance derivatives in the production of vaccines whereby the concept istihalah is analysed based on opinion from past and present scholars, as well as the correlation of istihalah in vaccines production. Gunardi (2018) also in his article title "Legally acceptable process for cosmetic products: a jurisprudential analytical study" analyzes the legal effect of istihalah (chemical transformation) in cosmetic products and also develop a model for the conditions and limitations of legally acceptable istihalah in these products. Another article is "Fiqh of Biotechnology: Reinterpreting Qur'anic Verses on the Impurity of Pigs and Its Implications for the Halal Status of Vaccines" by Imron & Muallifah (2025). The study aims to reinterpret Qur'anic verses and Hadith on the impurity of pigs within the framework of Fiqh of Biotechnology, a novel approach integrating Islamic jurisprudence and biotechnology. Abdul Moben and Hacı (2023) in their article "The Role of Istihalah (Transformation) and Istihlak (Dilution) in the Permissibility of Vaccines Derived from Forbidden Origins: An Islamic Law

Perspective” also discuss how the use of haram ingredients in vaccines can be legitimized through processes of *istihalah* (transformation) or *istihlak* (dilution), which alter their original nature. In another article “The Concept of “*Istihalah*” (Transformation) in Islamic Jurisprudence and Its Contemporary Applications” by Baserat & Enayat (2024). The article discusses the jurisprudential disagreement regarding whether *istihalah* can be used as evidence in using Haram substances.

The existing literatures as mentioned above indicate that prior studies have mostly focused on the uses of Haram substances and the Islamic jurisprudence of *Istihalah* and have rarely addressed their specific epistemic divergence which this work wants to fill the gap.

3. Conceptual Semantics and Semantic Distinctions

Istihalah: In Islamic jurisprudence, the concept of *Istihalah* must be carefully distinguished from several closely related yet distinct phenomena to comprehend its unique epistemological identity. The dual definition offered by Shahid al-Awwal — one tailored for jurists (“the change of components and their transformation from one state to another”) and the other for legal theorists (*usuliyyin*) focusing on “the change of species form” — demarcates this conceptual landscape (Al-Ansari, 1409 AH, Vol. 1, p. 341).

The first definition potentially encompasses simple physical alterations, such as grinding wheat into flour, which jurists unanimously exclude from the scope of legal purification. The second definition, focusing on the species form (*surah naw'iyah*), captures the intended legal meaning far more precisely.

Seyyed Khoei, by appending the crucial qualifier of “*walaw 'urfan*” (“even if only from a customary standpoint”), further refines this definition, explicitly grounding legal transformation in social perception rather than pure ontological reality (Al-Khoei, 1418 AH, Vol. 4, p. 148). This qualification reveals the fundamentally constructivist epistemology of Islamic jurisprudence: what matters is not what a substance “actually” is in a metaphysical or scientific sense, but rather how it is classified by the relevant interpretive community—namely, the general Muslim public. Al-Hakim goes so

far as to suggest that a formal definition of Istihalah is unnecessary, arguing that this concept appears in authoritative consensus only in specific, case-by-case instances rather than as a broad, deductive rule of law (Al-Hakim, 1374 AH, Vol. 2, p. 88).

Inqilab (conversion): this is usually referred to the specific transformation of wine into vinegar. While some jurists view it as a distinct legal category, Khoei considers it structurally synonymous with Istihalah (Al-Khoei, 1418 AH, Vol. 4, pp. 168–169).

Istihlak (consumption/dissolution): refers to the complete absorption and dilution of an impure substance (ayn al-najasaḥ) within a larger pure medium, which is functionally reversible and differs significantly from the irreversible nature of Istihalah (Al-Yazdi, 1409 AH, Vol. 1, p. 135).

Intiqal (transference): refers to the relocation and change of attribution of an impure element (such as human blood being absorbed by a mosquito), which yields a ruling of purity only in highly specific, designated scenarios (Al-Sabzavari, 1413 AH, Vol. 2, pp. 100–101).

In contrast to this custom-centered definition, experimental sciences view physical and chemical transformation as a completely objective, measurable phenomenon. It is verified based on changes in molecular structure, thermodynamic states, and chemical properties (using instruments such as spectroscopy and chromatography), completely devoid of any reliance on public perception or social naming conventions (Al-Balazadeh, 1392 AH/2013, p. 103). This fundamental epistemological contrast forms the primary cornerstone of the divergence analyzed in this paper.

4. Transformation in Experimental Sciences

Within the experimental sciences, transformation (the conceptual equivalent of Istihalah) is categorized into four distinct typologies: chemical, physical, biological, and nuclear transformations. Chemical transformation involves alterations at the molecular level, affecting the structure, composition, or intramolecular bonds, thereby producing entirely new substances with distinct physical and chemical properties. Physical transformation changes the state of matter or its

physical appearance without altering its fundamental chemical makeup (e.g., the phase change of solid ice into liquid water). Biological transformation refers to genetic, metabolic, or physiological alterations in living organisms, including evolutionary adaptations. Nuclear transformation involves changes in the atomic nucleus itself, such as proton decay and radioactive emission.

Scientific literature integrates these phenomena under a comprehensive definition: "In the experimental sciences, transformation is a fundamental process whereby a system, substance, or entity undergoes basic, profound modifications in its structure, parameters, or intrinsic characteristics. This transition results in the manifestation of new properties and behaviors that were absent prior to the process" (Al-Balazadeh, 1392 AH/2013, p. 103).

Unlike the jurisprudential formulation, this scientific definition makes absolutely no reference to customary perception, social constructs, or linguistic designations. Its epistemology is purely positivist: transformation is determined exclusively through empirical observation, precise quantitative measurement, and reproducible experimentation.

5. Urf as the Arbiter of Legal Transformation

The epistemological architecture of jurisprudential *Istihalah* rests upon a single, remarkably consistent foundation across both classical and contemporary legal sources: the absolute authority of common customary perception (*Urf-e-Am*) in determining whether a transformation has occurred. This principle is not merely a procedural evidentiary rule; rather, it defines the very ontological nature of transformation within Islamic law.

Seyyed Khoei articulates this with exceptional clarity: "Since sharia rulings are not based on rational [philosophical] or physical-chemical considerations, the ruling of purity in cases of *Istihalah* is strictly conditional upon a change recognized by common custom, even if a change in the species form has not occurred rationally" (Al-Khoei, 1418 AH, Vol. 4, p. 148; see also Tusi & Fazeli, 1404 Sh, pp. 327–328).

Khoei explicitly rejects what might be termed the "ontological correspondence theory" of legal transformation — the view that religious rulings must track physical-chemical reality independent of human perception. Instead, he endorses a "socially constructivist" epistemology, the decisive factor is how ordinary members of the public categorize and name the transformed substance. His caveat is that, "even if a change in species form has not occurred rationally," is highly significant. It implies that a substance may undergo absolutely no empirical change in its chemical composition, yet if common custom perceives it as transformed, it is legally purified. Conversely, a substance may undergo a profound chemical restructuring, but if common custom still identifies it by its original name, it remains legally unchanged.

Vahid Behbahani reinforces this interpretation, clarifying that the custom in question is not specialized custom (Urf-e-Khass, such as the consensus of experts or scientists), but rather the general understanding and belief of ordinary individuals (Al-Behbahani, 1424 AH, Vol. 5, p. 244). This explicit rejection of specialized custom as a binding criterion for material transformation carries profound implications for integrating modern scientific expertise into contemporary legal determinations.

Al-Sabzavari clarifies that the legal debates regarding whether Istihalah purifies contaminated objects (*mutanajjisat*) do not stem from a disagreement over the core legal principle itself (the major premise, or *kubrawi*), but rather over the practical application of custom to the subject matter (the minor premise, or *sughrawi*). Those who rule in favor of purification do so because they interpret custom as declaring the original subject annihilated; those who rule against it do so because they interpret custom as finding the original subject still present (Al-Sabzavari, 1413 AH, Vol. 2, pp. 80–81). Khomeini also concurs, noting that disagreements among jurists regarding cases such as charcoal, baked bricks, or steam generated from impure water are not genuine legal disputes, but are rather disputes over the concrete application of Urf — specifically, whether common perception judges a complete transformation to have taken place (Al-Khomeini, 1392 AH, Vol. 4, p. 381).

6. Analyzing Common Custom in the Era of Specialization

Despite the persistent emphasis of classical jurists on the authority of common custom (Urf-e-Am) and the rejection of specialized custom (Urf-e-Khass) (Al-Behbahani, 1424 AH, Vol. 5, p. 244), a fundamental question arises in modern society: given that public awareness is now systematically nourished by expert scientific discourse, can common custom truly maintain its epistemic independence? We propose that contemporary common custom must be bifurcated into two distinct categories:

Independent Common Custom (Urf-e-Am-e-Mustaqil): Refers to domains where ordinary individuals can directly identify and evaluate a substance through basic sensory perception (such as vision, smell, and touch) without external assistance—for example, the conspicuous transformation of wood into ash.

Expert-Influenced Common Custom (Urf-e-Am-e-Karshnas-Aludeh): Refers to domains where public perception is actively shaped by scientific data, educational curricula, and technical reports. While ordinary people require expert certification to establish the underlying facts, they retain the authority to execute the final linguistic naming once those facts are accepted.

Within this conceptual framework, relying on scientific experts does not subvert or replace custom; rather, it complements and refines it. Urf remains the ultimate source of legal nomenclature, but it adopts its diagnostic tools from scientific expertise. This distinction aligns harmoniously with the famous maxim, "al-ahkam tadur ma'a al-asma" (Al-Ansari, 1428 AH, Vol. 3, p. 301) and provides a systematic path to resolve the interaction between custom and modern science.

When scientific findings regarding molecular restructuring are widely disseminated via formal education, digital media, and public discourse, they inevitably alter the baseline of common custom. An ordinary citizen today does not share the same rudimentary understanding of "vinegar" or "ash" as an individual living in the fourth or tenth century. Contemporary common custom has already been "influenced" — or conceptually contaminated — albeit indirectly and partially, by modern scientific categories.

This introduces an epistemological question that classical jurists could not have anticipated: if scientific knowledge has itself transformed the structure of common custom, then relying on custom as the final determinant of material transformation does not filter out scientific input; instead, it merely filters that scientific input through the slower, collective process of cultural and cognitive evolution.

7. Philosophical Foundations of Istihalah and Chemical Change

Although Imami jurists agree on the requirement of the "transformation of species form" (*tabaddul al-surah al-naw'iyah*) in defining Istihalah, they diverge significantly regarding the exact interpretation of this "species form" and the practical criteria for its realization:

The Popular View (held by Sheikh Ansari, the author of *al-Urwah*, and many later scholars): Equates Istihalah entirely with customary change. That is, whenever common custom declares that the fundamental essence of a thing has changed, Istihalah is realized, even if philosophically or physically the underlying species form remains intact (Al-Khoei, 1418 AH, Vol. 4, p. 148).

Ayatollah Vahid Khorasani's View in his legal decrees, explicitly emphasizes the strict philosophical definition of species form, ruling that mere chemical-physical change is insufficient for legal purification unless the metaphysical essence has been altered (Vahid al-Khorasani, 1386 AH/2007 CE, Vol. 2, p. 139).

In light of the two-level model proposed in this study, it must be clarified that the acceptance of this model aligns primarily with the popular jurisprudential view (the equivalence of Istihalah to customary perception). However, within the rigid philosophical framework of those who insist on metaphysical species form, a mere chemical transformation may not suffice, and verifying Istihalah requires the proactive investigation of the jurist to uncover the underlying "common custom."

8. The Epistemic Gap: Scientific Change without Customary Transition

The tension between scientific and jurisprudential transformation becomes exceptionally acute when a substance undergoes a demonstrably verifiable chemical reaction — confirmed via spectroscopy, chromatography, or mass spectrometry — yet common custom continues to identify it by its original name.

Consider the oxidation of ethanol into acetic acid. Chemically, this represents a complete and absolute transformation: the molecular structure changes from a primary alcohol to a carboxylic acid, accompanied by radical shifts in physical properties (boiling point, acidity, chemical reactivity) and thermodynamic profiles (an exothermic reaction releasing approximately 493 kJ/mol of energy). Yet, common custom, particularly in traditional societies, has historically described this process as "wine turning into vinegar"—thereby preserving the semantic identity of the original substance within the dual nomenclature itself (wine-vinegar).

Seyyed Yazdi decrees that adding an external agent to wine that merely neutralizes its intoxicating effect does not purify it, and its prohibition and impurity remain intact (Al-Yazdi, 1409 AH, Vol. 1, p. 134). Al-Hakim explains that although the literal appearance (*zahir*) of several narrations (such as "if its intoxication departs, there is no harm" or "if the name of wine changes, there is no harm") indicates that any change eliminating the intoxication or the name suffices for purification, jurists have historically refrained from acting on this literal surface. Instead, they restricted purification specifically to the chemical-customary transition into vinegar (Al-Hakim, 1374 AH, Vol. 2, p. 100).

Khoei vigorously challenges this restriction, arguing that both the authentic narration of Ubayd ibn Zurarah ("When it transforms from the name of wine, there is no harm in it") and the authentic narration of Ali ibn Ja'far ("When its intoxication departs, there is no harm") demonstrate that the legal criterion is solely the cessation of the name or the intoxication, regardless of whether the resulting substance is vinegar or some other compound (Al-Khoei, 1418 AH, Vol. 4, pp. 164–165). Nonetheless, Khoei's position remains a minority view. The decisive consensus of jurists (*al-mashhur*) strictly limits purification to transformation into vinegar, as confirmed by the author of *Jawahir* and other classical authorities (Al-Hakim, 1374 AH, Vol. 2, p. 100).

This legal disagreement perfectly illustrates the underlying epistemic gap. Khoei's position - which accepts the texts at face value - converges with the scientific understanding of transformation, where any fundamental chemical change, irrespective of the specific product, is recognized as a valid transformation. Conversely, the majority opinion, which restricts purification strictly to vinegar, reflects a "thick" customary perception that encompasses not only the physical reality of change but also the specific direction and socio-cultural meaning of that change.

9. The Naming Condition (Change of Nomenclature)

In defining Istihalah, Imami jurists have frequently referred to the "change of name" (tabaddul al-ism) in addition to the "change of essence and species form". In cases such as the hydrogenation of vegetable oils, where the resulting product is renamed "margarine," the change of name is realized and Istihalah is easily established. In cases like isomerization, where the name "sugar" remains unchanged despite structural variations, the change of name is not realized, leaving the occurrence of Istihalah highly questionable.

The precise methodological rule is that a change in nomenclature serves as a strong presumption (qarinah) of the realization of Istihalah, but the absence of a name change does not preclude it; the ultimate arbiter remains the judgment of common custom regarding the change of essence (Al-Ansari, 1428 AH, Vol. 3, p. 301).

10. The Issue of Contaminated Objects (Mutanajjisat)

One of the most intensely debated issues in the jurisprudence of Istihalah is whether the transformation of contaminated objects (mutanajjisat) purifies them in the same manner as inherently impure substances (najis al-ayn). The dispute, as outlined in classical sources, does not concern the legal effect of transformation itself (which is unanimously purification), but rather whether contaminated objects can undergo legal transformation at all.

Scholars who distinguish between inherently impure and contaminated substances argue that impurity is intrinsic (dhati) to

inherently impure substances, meaning that when their essence is replaced (via transformation), the impurity is logically annihilated. However, for contaminated objects, the impurity is accidental (*aradi*) and adheres to the underlying physical substance (*jism*) itself. When a contaminated object undergoes transformation—such as wood turning into ash—the physical matter persists (it remains the same underlying material); only its outward form has altered. Consequently, they argue that, the impurity remains because it was attached to the persistent matter rather than the transient form. This position is historically attributed to Fazel-e-Hindi, and was subsequently adopted by Muhaqqiq Qommi and Fazel-e-Naraqī (Al-Ansari, 1428 AH, Vol. 3, p. 297).

Sheikh Ansari subjects this distinction to a meticulous critique. He argues that there is no proof that impurity in contaminated objects attaches to "corporeality" (*jismiyyah*) as an abstract persistent substrate, rather than to the specific species form. The famous legal maxim—"Any body (*jism*) that comes into contact with an impure substance while wet becomes contaminated"—uses the word "body" not to designate physical matter as the specific subject of the ruling, but simply to express the universal applicability of the ruling across all physical entities (Al-Ansari, 1428 AH, Vol. 3, pp. 297–298).

Seyyed Khoei defends the distinction with even greater vigor, arguing that the authentic narration of Ammar proves that impurity attaches to "any thing" (*kullu shay'*) that contacts an impure substance, without regard to its specific species features (Al-Khoei, 1418 AH, Vol. 4, pp. 151–152). Corporeality persists continuously during transformation, even when the species form changes. Therefore, one cannot cite the disappearance of the subject to justify a ruling of purification, since the physical subject is still present. Instead, one must either locate a specific, scriptural purifying agent designated for contaminated objects or rely on the presumption of continuity of impurity (*Istishab al-Najasah*) (Al-Khoei, 1418 AH, Vol. 4, pp. 151–152).

Al-Hakim proposes an alternative, custom-centric resolution, arguing that the criterion is neither purely rational nor structural, but rests entirely on *Urf*. If custom perceives the transformation of a contaminated object (e.g., wet contaminated wood burning into dry

ash) as the creation of an entirely new subject (mowdu'), then Istihalah purifies it. If custom views the original subject as still persistent, purification does not occur. The same custom-based criterion applies equally to both inherently impure substances and contaminated objects (Al-Hakim, 1374 AH, Vol. 2, pp. 91–92).

Mohammad-Taqi Amili delivers the most decisive rejection of this dhati-aradi distinction, anchoring his argument exclusively in custom. He writes that the basis for determining whether a subject persists or is annihilated is neither rational/philosophical precision nor the literal parsing of textual evidence, but rather the definitive judgment of common custom. There is no doubt that custom does not regard a piece of contaminated wood that has turned to ash, nor contaminated water that has been consumed and turned into the urine of a halal-meat animal, as the same remaining subject. Just as custom views a dog decomposing into salt as a valid Istihalah, it views the transformation of a contaminated object identically. The distinction between intrinsic and accidental impurity is a scholastic, rational construct that has zero relevance to the customary determination of a subject's persistence or obliteration (Al-Amili, 1384 AH, Vol. 2, pp. 302–303).

11. Case Study 1: Transformation by Fire—Ash, Charcoal, Smoke, and Steam

Transformation by fire vividly exposes the custom-science gap: all classical and contemporary jurists agree that ash resulting from fire is pure (Al-Tusi, 1407 AH, Vol. 1, pp. 499–500). Similarly, smoke and steam are ruled pure due to Istihalah (Al-Tusi, 1387 AH, Vol. 6, p. 283; Al-Allamah al-Hilli, 1410 AH, Vol. 1, p. 292), and a decisive consensus (ijma) on their purity has been reported (Al-Husayni al-Amili, 1419 AH, Vol. 2, p. 209).

However, charcoal remains a subject of intense controversy: Muhaqqiq al-Hilli expresses doubt (Muhaqqiq al-Hilli, 1364 AH, Vol. 1, p. 452); Shahid al-Thani rejects transformation entirely, maintaining its impurity (Al-Shahid al-Thani, 1413 AH, Vol. 1, p. 130; 1380 AH, Vol. 1, p. 453); Fayd al-Kashani deems it pure (Al-Fayd al-Kashani, 1395 AH, Vol. 1, p. 169); and Muhaqqiq al-Karaki regards its purification as highly probable (Al-Muhaqqiq al-Karaki, 1409 AH, Vol. 3, p. 222).

From a modern chemical perspective, the pyrolysis of wood is an absolute, irreversible transformation. Yet, common custom often perceives charcoal simply as "burnt wood" rather than a new substance. Reflecting this, the author of al-Urwah expresses hesitation (Al-Yazdi, 1409 AH, Vol. 1, p. 133), whereas Mar'ashi Najafi holds that if wood is fully carbonized into charcoal without releasing visible smoke, purity is the stronger legal opinion (Al-Yazdi, 1421 AH, Vol. 1, p. 257). The purification of steam is likewise debated: Khomeini rules it pure (Al-Khomeini, 1392 AH, Vol. 1, p. 137); Khoei argues that transformation into steam is purifying even when induced naturally by solar heat; and Al-Sabzavari delegates the determination of steam to custom, noting that in cases of persistent doubt, the principle of purity (Qa'idat al-Taharah) must be applied (Al-Sabzavari, 1413 AH, Vol. 2, p. 89).

12. Case Study 2: Soil and Biological Transformations

The natural, non-thermal transformation of impure substances (such as decomposing into soil, or transforming into worms or plant matter) represents the second major case category for exploring customary versus scientific determinations.

In the case of feces or perishless (maytah) decomposing into soil, Muhaqqiq al-Hilli cites two conflicting opinions of Al-Tusi, ultimately ruling that purification is achieved once decomposition is complete (Al-Muhaqqiq al-Hilli, 1364 AH, Vol. 1, p. 452). Allamah al-Hilli rules in favor of purification more decisively, arguing that when the original name ceases to apply, the associated legal ruling of impurity is automatically abated (Al-Allamah al-Hilli, 1412 AH, Vol. 3, p. 288), representing a textbook application of the maxim "al-ahkam tadur ma'a al-asma." Behbahani, despite historical divergence, regards the popular purifying view as highly robust and virtually reaching consensus (Al-Behbahani, 1424 AH, Vol. 5, p. 250). In al-Urwah, soil derived from feces is explicitly listed as a valid instance of Istihalah (Al-Yazdi, 1409 AH, Vol. 1, p. 132).

Regarding transformation into worms or other organisms, Seyyed Khoei and Ayatollah Vahid Khorasani both specify that not only are worms emerging from feces or carcasses pure, but any living animal generated from inherently impure or contaminated substances is ritually pure (Vahid al-Khorasani, 1386 AH/2007 CE, Vol. 2, p. 139). Khomeini similarly applies this purifying ruling in his *Tahrir al-Wasilah* (Al-Khomeini, 1392 AH, Vol. 1, p. 137).

Regarding plant growth irrigated by impure water or fertilized with impure organic matter, Allamah al-Hilli rules that the crops or trees irrigated with impure water, along with their subsequent new vegetative growth, are pure (Al-Allamah al-Hilli, 1414 AH, Vol. 1, p. 52). Shahid al-Awwal also deems any flora grown from impure water pure (Al-Shahid al-Awwal, 1430 AH, Vol. 12, p. 87). Among contemporary jurists, Al-Hakim rules that the decomposition of feces in soil as fertilizer, followed by its biochemical absorption into vegetables, constitutes a valid purifying *Istihalah* (Al-Hakim, 1374 AH, Vol. 2, p. 92).

These biological processes (mineralization, nutrient absorption, and the subsequent incorporation of atoms into plant tissues) represent genuine, complex material transformations. Chemically, the molecular restructuring is absolute and definitive. Customarily, the original nomenclature (feces, corpse) is completely extinguished, and the output is identified solely as a plant. Consequently, the legal ruling of purity is indisputable, and a robust consensus on the purity of such biologically transformed materials is recorded in classical law (Al-Behbahani, 1424 AH, Vol. 5, p. 241).

13. Opinions of Contemporary Jurists and Empirical Cases

An examination of contemporary legal decrees (fatwas) reveals a dynamic and diverse range of methodological approaches when confronting modern industrial challenges. The boundary between the observable and the imperceptible levels of transformation is determined by the criterion of "customary renown in identification": changes detectable by the ordinary senses (color, odor, shape) occupy the first level and do not require expert scientific evaluation; however,

when identifying transformation requires scientific instrumentation or molecular data beyond common perception, the jurist must refer to expert scientific testimony (Al-Sabzavari, 1413 AH, Vol. 2, p. 88).

The specific decrees of leading contemporary authorities are as follows:

Ayatollah Khamenei: Does not consider Istihalah to be established during the processing of gelatin derived from the skins of unslaughtered (ghayr-e-muthakka) animals, and therefore deems precautionary avoidance (ihtiyat) legally binding.

Ayatollah Sistani: Deems industrial alcohol ritually pure, but in the case of gelatin with doubtful transformation, rules it impure based on the continuity of the original state.

Ayatollah Makarim Shirazi: Conditions Istihalah strictly on a change in customary name, and rules industrial alcohol pure if its source (synthetic vs. fermented) is unknown (Makarim Shirazi, 1387/2008, Ruling 212).

Ayatollah Vahid Khorasani: Refuses to consider mere chemical transformation sufficient for legal Istihalah, emphasizing the rigid metaphysical requirement of species form (Vahid al-Khorasani, 1386 AH/2007 CE, Vol. 2, p. 139).

Ayatollah Hadavi Tehrani: Argues that Istihalah depends entirely on a shift in customary perception; if common custom views the new substance as functionally identical to the original, Istihalah is not realized (Hadavi Tehrani, 1390/2011).

This methodological diversity demonstrates that any viable modern model must be robust enough to explain both the conservative, restrictive approach (e.g., regarding gelatin) and the permissive, flexible approach (e.g., regarding industrial alcohol).

Three key concrete industrial cases in this context are:

Gelatin: The chemical hydrolysis of collagen into gelatin lies within the second level of our model, requiring scientific verification of molecular transformation. In cases of persistent doubt, the presumption of continuity of impurity (Istishab al-Najasah) is applied (Al-Khoei, 1418 AH, Vol. 4, p. 152). However, Hadavi Tehrani has accepted the successful realization of Istihalah in highly processed gelatin products, such as those used in medical vaccines (Hadavi Tehrani, 1390/2011).

Industrial Alcohol: Because it is synthesized directly from petrochemical (non-fermentative) sources rather than wine or agricultural fermentation, it is not subject to the rules of Istihalah at all. Instead, it is governed by the default principle of intrinsic purity, and the vast majority of contemporary jurists rule it ritually pure.

Fermented Citric Acid: Positioned at the second level of our model, it requires expert biochemical confirmation of complete chemical conversion, which is then submitted to customary judgment to verify whether a change of essence has occurred.

14. The Role of Istishab and Principle of Purity in Uncertainty

In scenarios of expert scientific uncertainty or conflicting scientific testimonies, the legal obligations are systematically resolved as follows:

If there is prior certainty regarding the substance's impurity, the presumption of continuity of impurity (Istishab al-Najasah) is applied, maintaining its impure status (Muzaffar, 1383/2004, Vol. 2, p. 310);

In doubtful cases lacking any prior or positive evidence of impurity, the default principle of purity (Qa'idat al-Taharah) takes precedence, ruling the substance pure (Al-Khoei, 1418 AH, Vol. 4, p. 169);

In cases of conflicting scientific opinions, the judgment of the more trustworthy, experienced, or highly specialized expert takes precedence. In the event of an absolute tie, the presumption of continuity of impurity rules the case (Al-Sabzavari, 1413 AH, Vol. 2, p. 11).

The methodological legal rules (usuliyyah) for referring issues to scientific experts are:

Instrumentality (Tariqiyyah): The expert's scientific opinion serves strictly as a tool for uncovering the physical reality; it possesses no intrinsic legal authority and is rendered completely void if proven to contradict empirical facts (Al-Ansari, 1428 AH, Vol. 3, p. 111).

Obligation and Permissibility: Referring to scientific experts is a binding necessity (wajib) for the jurist when common custom cannot diagnose the facts. For the layperson, it is permissible (ja'iz) to rely on the scientific determinations adopted in the jurist's fatwa (Al-Khomeini, 1392 AH, Vol. 4, p. 380).

Resolution of Conflict: In instances of conflicting scientific data, preference is given to the expert possessing greater credibility, advanced specialization, or academic renown. If the credentials are equal, the presumption of continuity of impurity is applied (Al-Sabzavari, *ibid.*).

15. Voluntary Istihalah in Imami Jurisprudence

The popular consensus among Imami jurists does not distinguish between voluntary (industrially designed and artificially induced) and involuntary (natural) Istihalah, ruling both as absolutely purifying (Al-Ansari, 1409 AH, Vol. 1, p. 308). Consequently, in modern chemical and industrial processes, once a complete physical-chemical transformation and its customary recognition are established, Istihalah is fully realized, even if the industrial line was deliberately designed and operated for the express purpose of purification.

16. The Authority of Specialized Custom: An Unresolved Scholarly Question

The most critical legal-theoretic question emerging from this study concerns the exact probative weight of specialized custom (Urf-e-Khass) versus common custom (Urf-e-Am) in determining material transformation. Classical authorities uniformly reject specialized custom as a primary legal criterion. Vahid Behbahani explicitly states that the custom under consideration is not specialized custom (such as the private consensus of scientists), but rather the general understanding and shared belief of ordinary people (Al-Behbahani, 1424 AH, Vol. 5, p. 244).

This rejection is highly consistent with the broader *usuli* principle that custom is legally binding only when it is common, continuous, and certain. Specialized custom, by contrast, belongs to a narrow subgroup of society and remains inaccessible to the general Muslim public, who are the actual addressees of religious obligations. Since Islamic law addresses all believers in accordance with their ordinary capacities, the criterion for determining names and the essences of substances cannot be the private, advanced knowledge of scientific experts; it must remain the common understanding accessible to all.

Nonetheless, this classical stance creates growing tension due to the systemic penetration of scientific literacy into public consciousness. Contemporary decrees demonstrate this delicate dynamic. Ayatollah Hadavi Tehrani writes:

"If, from a specialized perspective, a substance is converted into another substance during a chemical process, yet common custom considers both substances to be one and the same, jurisprudential Istihalah has not occurred. For example, an apple that is peeled and changes color and taste due to exposure to air—custom still considers it an apple, and jurisprudential Istihalah has not occurred" (Hadavi Tehrani, 1390/2011).

This ruling explicitly prioritizes common custom over specialized scientific data, even when that scientific data is absolute and uncontested.

This prompts a critical question: how long can this prioritization of custom be maintained once specialized knowledge becomes public knowledge? If every schoolchild learns that "the oxidation of ethanol produces acetic acid" and this chemical understanding shapes their daily perception of vinegar, does common custom itself change? At what precise point does the chemist's private understanding transform into public common understanding? The classical framework provides no clear answer to this question, as it did not anticipate the systematic, institutionalized expansion of scientific literacy to the entire population.

17. Conclusion

This research yields three primary conclusions:

First, the epistemic divergence is fundamental and structural. Istihalah is a socio-legal concept rooted in custom, not a physical-chemical concept that can be replaced by chemical analysis. Seyyed Khoei's assertion ("rulings are established upon custom, not rational considerations") demonstrates its intrinsic, constructivist character. Attempting to completely "scientize" Istihalah ignores its normative nature. Consequently, the two systems operate at fundamentally distinct epistemic levels (confirming Hypothesis 1).

Second, practical convergence is possible but not guaranteed. The infiltration of science into custom enables alignment, but this process

is slow, gradual, and uneven. In cases such as the oxidized apple, which custom persistently deems an "apple," the divergence remains stable. Therefore, rather than speaking of "complete alignment," scholars should refer to "significant alignment" or "practical convergence" (Hypothesis 2 receives partial validation).

Third, the classical jurisprudential framework lacks a systematic, institutionalized mechanism for incorporating scientific expertise. Classical principles reject specialized custom as a direct legal source, creating a major cognitive gap when dealing with modern emerging matters (such as industrial food processing and synthetic materials). Existing ad-hoc solutions (presumption of continuity, the principle of purity, and case-by-case fatwas) are incomplete and lack methodological unity (Hypothesis 3 receives the least support).

The study proposes two future pathways for legal reform: indirect incorporation (the gradual, discursive infiltration of science into common custom via education and public debate) and the hierarchical differentiation of levels of custom (local, regional, and supra-regional). Until these reforms are formally conceptualized, this epistemic divergence will remain the defining characteristics of contemporary fatwas.

Bibliography

- Al-Allamah al-Hilli, H. Y. (1410 AH [1989 CE]). *Nihayat al-Ihkam fi Ma'rifat al-Ahkam* (Vol. 1). Qom: Isma'iliyan.
- Al-Allamah al-Hilli, H. Y. (1412 AH [1991 CE]). *Muntaha al-Matalib fi Tahqiq al-Madhhab* (Vol. 3). Mashhad: Majma' al-Buhuth al-Islamiyyah.
- Al-Allamah al-Hilli, H. Y. (1414 AH [1993 CE]). *Tadhkirat al-Fuqaha* (Vol. 1). Qom: Mu'assasat Al al-Bayt li-Ihya al-Turath.
- Al-Amili, M. T. (1384 AH). *Misbah al-Huda fi Sharh al-Urwah al-Wuthqa* (Vol. 2). Tehran: Unknown Publisher.
- Al-Ansari, M. (1409 AH). *Kitab al-Taharah* (Vol. 1). Qom: Majma' al-Fikr al-Islami.
- Al-Ansari, M. (1428 AH). *Fara'id al-Usul* (Vol. 3). Qom: Majma' al-Fikr al-Islami.
- Al-Balazadeh, P. (1392 Sh [2013 CE]). *A Descriptive Dictionary of Chemistry*. Tehran: Farhang-e Moaser.
- Al-Behbahani, M. B. (1424 AH). *Masabih al-Zalam fi Sharh Mafatih al-Shara'i* (Vol. 5). Qom: Mu'assasate Allameh Mojaddad Vahid al-Behbahani.
- Al-Fayd al-Kashani, M. (1395 AH). *Mafatih al-Shara'i* (Vol. 1). Tehran: Shahid Motahhari High School.
- Al-Hakim, M. (1374 AH [1955 CE]). *Mustamsak al-Urwah al-Wuthqa* (Vol. 2). Qom: Dar al-Tafsir.
- Al-Husayni al-Amili, M. J. (1419 AH [1998 CE]). *Miftah al-Karamah fi Sharh Qawa'id al-Allamah* (Modern Edition, Vol. 2). Qom: Mu'assasat al-Nashr al-Islami.
- Al-Khoei, A. (1418 AH [1997 CE]). *Mawsu'at al-Imam al-Khoei* (Vol. 4). Qom: Mu'assasat Ihya' Athar al-Imam al-Khoei.
- Al-Khomeini, R. (1392 AH [1972 CE]). *Kitab al-Taharah* (Vol. 4). Tehran: Institute for Compilation and Publication of Imam Khomeini's Works.
- Al-Khomeini, R. (1392 AH [1972 CE]). *Tahrir al-Wasilah* (Vol. 1). Tehran: Institute for Compilation and Publication of Imam Khomeini's Works.

- Al-Muhaqqiq al-Karaki, A. (1409 AH [1988 CE]). *Rasa'il al-Muhaqqiq al-Karaki (Sharh Alfiyyat al-Shahid al-Awwal)* (Vol. 3). Qom: Grand Ayatollah Mar'ashi Najafi Library.
- Al-Sabzavari, A. (1413 AH [1992 CE]). *Muhadhdhab al-Ahkam fi Bayan al-Halal wa-al-Haram* (Vol. 2). Qom: Office of Ayatollah Sabzavari.
- Al-Shahid al-Awwal, M. (1430 AH [2009 CE]). *Mawsu'at al-Shahid al-Awwal (Al-Bayan)* (Vol. 12). Qom: Markaz al-Ulum wa-al-Thaqafah al-Islamiyyah.
- Al-Shahid al-Thani, Z. (1380 AH [2001 CE]). *Rawd al-Jinan fi Sharh Irshad al-Adhhan* (Vol. 1). Qom: Bustan-e Kitab-e Qom.
- Al-Shahid al-Thani, Z. (1413 AH [1992 CE]). *Masalik al-Afham ila Tanqih Shara'i al-Islam* (Vol. 1). Qom: Mu'assasat al-Ma'arif al-Islamiyyah.
- Al-Tusi, M. H. (1387 AH [1967 CE]). *Al-Mabsut fi Fiqh al-Imamiyyah* (Vols. 1 & 6). Tehran: Maktabat al-Murtadawiyyah.
- Al-Tusi, M. H. (1407 AH [1986 CE]). *Al-Khilaf* (Vols. 1 & 6). Qom: Mu'assasat al-Nashr al-Islami.
- Al-Yazdi, M. K. (1409 AH [1989 CE]). *Al-Urwah al-Wuthqa* (Vol. 1). Beirut: Mu'assasat al-A'lami lil-Matbu'at.
- Al-Yazdi, M. K. (1421 AH [2000 CE]). *Al-Urwah al-Wuthqa* (Vol. 1). Qom: Mu'assasat al-Nashr al-Islami.
- Amin, Abdul Moben, and Hacı Mehmet Gunay. "The Role of Istihalah (Transformation) and Istihlak (Consumption) in the Permissibility of Vaccines Derived from Forbidden Origins: An Islamic Law Perspective". *Journal of halal and ethical research* 5 5, no. 2 (January 1, 2023): 1–23.
- Baserat, F. R., & Enayat, A. (2024). The Concept of "Istihalah"(Transformation) in Islamic Jurisprudence and Its Contemporary Applications. *International Journal of Cultural & Religious Studies*, 4(1), 45.
- Gunardi, S. (2018). *Legally Acceptable Process for Cosmetic Products: A Jurisprudential Analytical Study*. IAEME.
- Hadavi Tehrani, M. (1390 Sh [2011 CE]). *Do chemical changes, as the counterpart of physical changes, induce transformation?* Qom:

- Andishevaran Information Portal. Retrieved from <http://hadavi.info/fa/archive/question/fa1223>
- Hehsan, A., Hassan, A. M., Ghazali, M. A. I., & Haron, Z. (2020). Fatwa Debate On Porcine Derivatives In Vaccine From The Concept Of Physical And Chemical Transformation (Istihalah) In Islamic Jurisprudence And Science. *Journal of Critical Reviews*, 7(7), 10-31838.
- Imron, A., & Muallifah, A. Y. (2025). Fiqh of Biotechnology: Reinterpreting Qur'anic Verses on the Impurity of Pigs and Its Implications for the Halal Status of Vaccines. *Jurnal Studi Ilmu-ilmu Al-Qur'an dan Hadis*, 26(1), 189-216.
- Makarim Shirazi, N. (1387 Sh [2008 CE]). *Resalah Towdih al-Masa'il* (Ruling 212). Qom: Payam-e-Adalat Publications.
- Muhaqqiq al-Hilli, J. (1364 AH [1985 CE]). *Al-Mu'tabar fi Sharh al-Mukhtasar* (Vol. 1). Qom: Mu'assasat Sayyid al-Shuhada.
- Muzaffar, M. R. (1383 Sh [2004 CE]). *Usul al-Fiqh* (Vol. 2). Qom: Islamic Publications.
- Rezaei Esfahani, M. A., & Karimi, A. (1404 Sh). A critical review of text continuity theory based on Francois Deroche's codicological findings. *Journal of Quranic Readings*, 13(25), 163–190. doi:10.22034/qer.2025.11718
- Rezaei Esfahani, M. A., and karimi, A. (2025). A Study of the Carbon-14 Dating of the Two Mus'hafs (Manuscripts) of Razavi and Sana'a. *The Quran and Science*, 18(35), 329-338. doi: 10.22034/qve.2025.10038
- Tusi, H., & Fazeli, F. A. (1404 Sh). Social and legal consequences of abandoning enjoining good and forbidding evil from the perspective of the Quran. *Quranic Studies*, (26), 327–328.
- Vahid Al-Khorasani, H. (1386 AH [2007 CE]). *Minhaj al-Salihin* (Vol. 2). Qom: Imam Baqir al-Ulum School.