



The Integration of *Fiqh* and Science: The Pork Element in the Medical Fatwas of the Indonesian Ulema Council

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Abstract: Although the integration of religion and science has been widely examined across disciplines, it remains relatively underexplored within the field of *fiqh* (Islamic jurisprudence), particularly in relation to medical issues. This study therefore addresses a substantial gap in the existing literature. Here, case of integration in the fatwas issued by the Indonesian Ulema Council (Majelis Ulama Indonesia/MUI) was examined. These fatwas addressed vaccines that were considered *haram* (forbidden) since they contained or came into contact with pork-derived elements, except in cases of emergency. On the contrary, the East Java branch of the MUI permitted their use based on the concept of complete chemical transformation (*istihālah tammah*). To explore this issue, the study posed three research questions: (1) How are elements related to pork positioned within MUI fatwas? 2) How does the authority of ulema affect the positioning of pork-derived elements in MUI fatwas? and (3) How is the integration model of *fiqh* and science articulated in MUI fatwas? The first question was examined through content analysis of existing MUI fatwas, the second through analysis of interview data from Muslim intellectuals in Jakarta, East Java, West Sumatra, and Aceh, and the third through an integrated analysis of interview data and fatwa documents using the theory of authority. The findings thus indicate that the MUI adopts an integrative approach to science and *fiqh* in issuing fatwas. However, the role of science tends to remain largely confirmatory and has yet to exert a more substantive influence. In this regard, the East Java MUI has taken a more ‘open’ approach, moving beyond the established mainstream of *fiqh* while still operating within the framework of classical ulema authority.

Keywords: Integration, Medical Fatwas, Authority, Islamic Law

Abstrak: Tema ini dinilai penting karena integrasi antara agama dan sains telah banyak dibahas dalam banyak bidang, kecuali dalam konteks fikih, khususnya terkait medis. Penelitian ini fokus pada integrasi dalam fatwa MUI Pusat yang menyatakan vaksin haram sebab mengandung unsur atau bersentuhan dengan babi, kecuali karena darurat, sedangkan MUI Jawa Timur membolehkannya dengan alasan perubahan kimia sempurna. Untuk menjelaskan hal tersebut, diajukan tiga pertanyaan: (1) Bagaimana unsur babi diposisikan dalam fatwa MUI? (2) Bagaimana otoritas ulama menjadi faktor yang memengaruhi posisi unsur babi dalam fatwa MUI? dan (3) Bagaimana model integrasi fikih dan sains dalam fatwa MUI? Pertanyaan pertama dijawab melalui content-analysis terhadap data dokumentasi fatwa-fatwa MUI. Pertanyaan kedua dijawab melalui analisis terhadap data wawancara dengan para intelektual muslim di DKI Jakarta, Jawa Timur, Sumatera Barat, dan Aceh. Pertanyaan ketiga dijawab melalui analisis terhadap hasil wawancara dan dokumentasi fatwa menggunakan teori otoritas. Secara umum, penelitian ini menunjukkan MUI menggunakan pendekatan integratif antara sains dan fikih dalam menghasilkan fatwa. Namun demikian, fungsi pendekatan sains cenderung hanya konfirmatif, belum sampai pada tingkat memengaruhi secara lebih substantif. MUI Jawa Timur mengambil jalan yang lebih “terbuka”, keluar dari kemapanan fikih mayoritas, tetapi masih tetap berada dalam koridor otoritas ulama klasik.

Kata Kunci: Integrasi, sains, *fiqh*, fatwa medis, otoritas, hukum Islam

Introduction

The COVID-19 situation has prompted religious authority institutions to respond to the issue of vaccine use. Scholarly discussions were conducted by the Indonesian Ulema Council (Majelis Ulama Indonesia/MUI) at both the national level and the East Java regional level through formal legal products in the form of *fatwas* (Islamic legal ruling) issued by these religious authorities.¹ The Central MUI issued Fatwa Number 14 of 2021 concerning the Lawfulness of the Use of the AstraZeneca COVID-19 Vaccine.² This *fatwa* stated that “the AstraZeneca COVID-19 vaccine is *haram* (forbidden/unlawful) because, in its production

¹M. Asrorun Ni'am Sholeh, “Towards a Progressive Fatwa: MUI's Response to the COVID-19 Pandemic,” *AHKAM: Jurnal Ilmu Syariah* 20, No. 2 (2022). Saifuddin Sa'dan, et.al., “Imkāniyāt Al-Ijtihādāl-Istislāhī Wa Ishāmātuhuli Hall Al-Qadhāyāal-Fiqhiyyah Al-Mu'āsarah: Dirāsāt Fī Fatāwājā'ihah Covid Fī Indonesia,” *Jurnal Ilmiah Islam Futura* 24, No. 1 (2024). M. Asrorun Niam Sholeh and Muhammad Ishar Helmi, “The COVID-19 Vaccination: Realization on Halal Vaccines for Benefits,” *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 5, No. 1 (2021).

²Fatwa MUI Nomor 14 Tahun 2021 tentang Hukum Penggunaan Vaksin Covid-19 Produk AstraZeneca [Fatwa of the MUI No. 14 of 2021 on the Legal Ruling of the Use of the AstraZeneca COVID-19 Vaccine]; 1-13. <https://mirror.mui.or.id/wp-content/uploads/2021/03/Fatwa-MUI-No-14-Tahun-2021-tentang-Hukum-Penggunaan-Vaksin-Covid-19-Produk-AstraZeneca-compressed.pdf>

process, it utilizes trypsin derived from pigs.” A different *fatwa* was issued by the East Java MUI through a Fatwa Commission meeting on March 21, 2021, which declared that the AstraZeneca vaccine produced in the United Kingdom is *halal* (permissible/lawful) and pure. The reasoning was that the discovery and production of the COVID-19 vaccine involved materials that had undergone a complete chemical transformation (*istihālah*). Therefore, the vaccine product is considered permissible for use. The public was encouraged not to doubt its use, especially given that vaccination constitutes a national emergency need. The East Java MUI also emphasized that this *fatwa* was issued to prevent further transmission of COVID-19 as part of efforts to bring the pandemic to an end.³

Studies on vaccine use can be classified into three main strands of prior research. Firstly, some studies emphasize the importance of the relationship between *fiqh* (Islamic jurisprudence) and science. For example, the relationship between *salah* (prayer) practices and astronomy has revealed scientific findings in the field of health that have influenced *fiqh*, including determinations related to menstruation. The historical development of Islamic civilization in the Andalusian era within Spain further illustrates Muslim intellectual endeavors to synergize religious scholarship with the natural sciences. Secondly, other studies concern with the beneficial contributions of the *ulema* (Islamic scholars), specifically through the MUI, in curtailing the spread of COVID-19 by applying various *fiqh* principles, including the prevention of harm (*sadd al-ẓarī’ah*) and the five fundamental objectives of Islamic law (*al-darūriyyāt al-khams*). Consequently, in this setting, the *ulema* are positioned as charismatic leaders, given that they significantly influence socio-religious transformation, and thus, their leadership can be interpreted as a manifestation of transformational leadership. Thirdly, some studies focus specifically on *fiqh* discussions about complete chemical transformation (*istihālah*). These studies explore how this process affects legal rulings, both in theory and in the practical use of modern products.

It is thus important to note that studies on *istihālah* have showed that the *ulema* have different opinions on how to apply scientific developments within *fiqh*. This divergence influences some scholars, particularly in Malaysia, who tend to adhere to the authority of the Shāfi’ī school of thought, which does not recognize *istihālah* in products containing porcine elements unless the transformation occurs naturally. On the other hand, some *ulema* accept *istihālah*, albeit under conditions of *darūrah* (necessity). This indicates that another dimension requiring further attention, yet often underexplored in previous studies,

³Fatwa MUI Provinsi Jawa Timur Nomor 1 Tahun 2021 tentang Hukum Penggunaan Vaksin Covid-19 Produk Astrazeneca [Fatwa of the East Java Provincial MUI No. 1 of 2021 on the Legal Ruling of the Use of the AstraZeneca COVID-19 Vaccine]; 1-8. <https://muijatim.or.id/wp-content/uploads/2022/09/Fatwa-No.1-tahun-2021-tentang-Hukum-Penggunaan-Vaksin-Covid-19-Produk-AstraZeneca.pdf>

is the influence of juristic authority on contemporary *fatwas*. Thus, although *ulema* involved in the MUI may represent transformational leadership as agents of social change or as integrators of *fiqh* and science, differences in interpretive authority continue to shape their perceptions and rulings. An examination of several Indonesian *fatwas* concerning the use of porcine elements for medical purposes is therefore expected to reveal how such integration is constructed within the landscape of *ulema* authority. To this end, this study aims to explore how *fiqh* and science are integrated through an analysis of MUI *fatwas* on the medical use of porcine elements. The study addresses three research questions as follows: (1) How are porcine elements positioned in the *fatwas*? (2) How does *ulema* authority influence the positioning of porcine elements in these *fatwas*? and (3) What model of *fiqh*–science integration is reflected in the *fatwas* issued by the MUI?

The data for this study were collected through qualitative methods using two main sources: (1) documentary analysis of *fatwas* issued by the MUI at both national and provincial levels, and (2) interviews conducted in 2023 with experts from several Islamic organizations, including MUI, Muhammadiyah, and Nahdlatul Ulama (NU). The study sample was drawn from four provinces, i.e., Aceh, West Sumatra, East Java, and the DKI Jakarta (Special Capital Region of Jakarta), which was selected based on their distinctive characteristics or the prominence of particular socio-religious orientations. Aceh was chosen due to the formally recognized role of *ulema* within its governmental structure; West Sumatra reflects a stronger Muhammadiyah influence; East Java is predominantly associated with NU; while DKI Jakarta tends to be more “independent” and serves as the central hub of *ulema* authority within the MUI.

The relationship between *ulema* authority and scientific authority in the MUI *fatwas* was examined through scholars’ perceptions of the concept of *istihālah*. Interview data were selectively presented by taking representative samples from each organization within each region. The study began with a desk review of the MUI *fatwas* related to the medical use of porcine elements, followed by in-depth interviews with selected scholars. Data analysis was conducted through three stages: data reduction, data display, and data verification.⁴ The verified data were then analyzed using the conceptual frameworks of integration and legal authority in the discovery of Islamic legal rulings.

Integration, the Relativity of Fiqh, and Authority

The term “integration” derives from the Latin “*integrare*,” signifying “to make whole” or “to restore to completeness.” Since the seventeenth century, the English “integrate” has been employed to denote the unification, combination, or

⁴Matthew B. Miles and A. Michael Huberman, *Qualitative Data Analysis* (UK: Sage Publication, 1994).

merging of distinct components into a unified entity.⁵ The concept of integration has, however, expanded to encompass a wider range of areas, including social, political, economic, and scientific spheres.⁶ Within these contexts, integration denotes the process of connecting diverse elements to create an interconnected and unified whole.⁷ Furthermore, integration can also imply collaboration or cooperation among various disciplines, organisations, or social groups, all working towards common objectives.⁸ Consequently, integration facilitates the convergence of diverse perspectives, knowledge systems, and methodological approaches, thereby fostering a more comprehensive understanding of a specific phenomenon.⁹

The concept of integration is widely used to deal with complex problems that require holistic and comprehensive approaches. It has an essential role in understanding the complexity and dynamics of interconnected systems;¹⁰ and contributes to more effective solutions for multifaceted social, economic, and environmental challenges.¹¹ In social contexts, integration refers to efforts to unite diverse groups or communities into a broader social unity while respecting diversity and fostering harmonious relationships.¹² Conversely, integration within

⁵Alexandre Caeiro, "Facts, Values, and Institutions: Notes on Contemporary Islamic Legal Debate," *The American Journal of Islamic Social Sciences* 34, no. 2 (2017).

⁶Mohd Anuar Ramli et al., "Gender Analysis in Contemporary Islamic Discourse," *Asian Social Science* 9, no. 7 (2013); Feryad Hussain and Anke Iman Bouzenita, "Squaring the Circle: A Critique of the Islamisation of the Human Sciences Project," *JSTOR* 50, no. 3/4 (2011).

⁷Ian G. Barbour, *When Science Meets Religion: Enemies, Strangers or Partners?* (HarperCollins, 2000). Isaac Cohen Orantes, "The Concept of Integration," *CEPAL Review* 1981, no. 15 (1981).

⁸Nidhal Guessoum, *Islam's Quantum Question: Reconciling Muslim Tradition and Modern Science* (London: I.B. Taurus, 2011). Zainal Abidin Bagir, "Nidhal Guessoum's Reconciliation of Islam and Science," *Zygon* 47, no. 2 (2012). Miftahudin, "Islamization Of Science Or Scientification Of Islam? Bridging The Dichotomy Of Science," *European Journal for Philosophy of Religion* 15, no. 1 (2023).

⁹Khaled Abou El Fadl, *Speaking in God's Name: Islamic Law, Authority and Women* (London, 2001). Kuntowijoyo, *Islam Sebagai Ilmu: Epistemologi, Metodologi, Dan Etika Keilmuan Islam* (Yogyakarta: Teraju, 2004). M. Amin Abdullah, "Bangunan Baru Epistemologi Keilmuan Studi Hukum Islam Dalam Merespon Globalisasi," *Asy-Syir'ah: Jurnal Ilmu Syari'ah Dan Hukum* 46, no. 2 (2012).

¹⁰Jamilah Jamaluddin et al., "Integration of Islamic Input in Medical Curriculum - Universiti Sains Islam Malaysia (USIM) Experience," *International Medical Journal Malaysia* 13, no. 2 (2014).

¹¹Majid Daneshgar, "The Future of Islam And Science: Philosophical Grounds," *Zygon: Journal of Religion and Science* 55, no. 4 (2020). Mohsen Feyzbakhsh, "Theorizing Religion And Questioning The Future of Islam And Science," *Zygon: Journal of Religion and Science* 55, no. 4 (2020). Danjuma A Maiwada, "Islamization of Knowledge: Background and Scope," *American Journal of Islamic Social Sciences* 14, no. 2 (1999).

¹²Louay Safi, *The Foundation of Knowledge: A Comparative Study in Islamic and Western Methods of Inquiry* (Kuala Lumpur: IIIT & IIUM, 1996). Noeng Muhajir, *Filsafat Ilmu:*

scientific fields necessitates collaboration and interaction across diverse areas of knowledge and disciplines, with the objective of tackling intricate and multifaceted challenges.¹³ This disciplinary integration, therefore, enables the application of both cross-disciplinary and interdisciplinary methodologies, which, in turn, fosters a more comprehensive understanding and the development of more complete solutions.¹⁴

In the context of Islamic law, integration forms an essential part of the methodology for understanding the texts of the Qur'an and Hadith in order to produce *fiqh*. Linguistically, *fiqh* is derived from the Arabic "*al-fahm*", i.e., understanding or knowledge,¹⁵ and in its technical sense, it signifies knowledge of practical Islamic legal rulings obtained from specific textual evidence. The development of *fiqh* involves a process known as *ijtihad*, through which careful intellectual and practical effort is applied to address complex issues. Closely related to this is the concept of *fatwa*, a ruling or legal opinion issued by an individual or an institution in response to a specific matter. However, unlike *ijtihad*, which formulates legal principles in general terms regardless of whether a specific case exists, a *fatwa* addresses particular cases that require legal determination,¹⁶ although the methodological processes underlying both are essentially the same. Both *ijtihad* and *fatwa* ultimately give rise to *fiqh* as the practical application of Islamic law in human conduct.

Ijtihad is a practice that many *ulema* have exercised to respond to ongoing social, political, and economic changes since the death of the Prophet Muhammad in 632 CE. In addition, some *ulema*, such as Muhammad Shahrur, are of the opinion that the Prophet Muhammad had indeed practiced *ijtihad*.¹⁷ This opinion, however, differs from the more widely held position that the Prophet did not engage in *ijtihad*, given that he was continuously guided by divine revelation, as supported by the following Qur'anic statement: "*Nor does he speak from [his own] inclination; It is not but a revelation revealed*" (Surah an-Najm [53]:3–4). During the period of the *al-Khulafā' al-Rāshidūn* (Rightly Guided Caliphs),

Ontologi, Epistemologi, Aksiologi, First Order, Second Order, & Third Order of Logics Dan Mixing Paradigms Implementasi Metodologik (Yogyakarta: Rake Sarasin, 2011).

¹³Soerjanto Poespowardojo dan Alexander Seran, *Filsafat Ilmu Pengetahuan: Hakikat Ilmu Pengetahuan, Kritik Terhadap Visi Positivisme Logis Serta Implikasinya* (Jakarta: Kompas, 2015).

¹⁴M. Amin Abdullah, *Islamic Studies Di Perguruan Tinggi: Pendekatan Integratif-Interkonektif* (Yogyakarta: Pustaka Pelajar, 2012).

¹⁵Wahbah al-Zuhaili, *Al-Fiqh Al-Islam Wa Adillatuh*, I (Damascus: Dar al-Fikr, 1989).

¹⁶Khaleed M. Abou El Fadl, *And God Knows the Soldiers: The Authoritative and Authoritarian in Islamic Discourses* (Lanham, Md.: University Press of America, 2001).; Abdolkarim Soroush, *Reason, Freedom, & Democracy in Islam* (New York: Oxford University Press, 2000).

¹⁷Muhammad Shahrur, *Al-Kitab Wa Al-Qur'an: Qira'ah Mu'asirah* (Damascus: Al-Ahaly, n.d.).

‘Umar ibn al-Khaṭṭāb is often cited as a prominent figure in exercising *ijtihād*, especially in response to the rapid expansion of Islamic rule, which came to encompass the Arabian Peninsula, Palestine, Syria, much of Persia, and Egypt, i.e., regions with diverse languages and cultural traditions. It was within this context that theories of social and legal change became increasingly relevant. Ibn Qayyim al-Jawziyyah (1292–1349) notes that legal rulings change in accordance with changes in place, time, circumstances, intentions, and customs.¹⁸ Other scholars have built on this view by highlighting a broader range of factors that can influence legal change, which include changes in knowledge, human needs, human capacity, socio-economic and political conditions, ways of thinking, and even natural disasters.¹⁹

These legal changes are closely related to the authority of legal reasoning, which in Islam is exercised by *ulema* (i.e., private entities), both individually and collectively, as well as formally by the government through regulations and by judges through court rulings. The authority of the *ulema* has given rise to various *madhhab* (schools of Islamic law) since the eighth century CE, approximately one century after the death of the Prophet Muhammad, some of which continue to exist today in their “classical” form. The term *classical* is used in contrast to the emergence of reformist schools of thought that began to develop in the nineteenth century.²⁰

Among the critiques proposed by reformist scholars is the view that classical interpretations of Islamic texts, which tend to be theocentric, are unable to fully realize the universal mission of Islam as *rahmatan lil ‘ālamīn* (a mercy to all creation). Thus, they argue for a shift toward a theo-anthropocentric paradigm that places greater emphasis on human realities,²¹ including their relationship with scientific development. Aside from these epistemological differences, diversity in legal interpretations is also affected by the institutional positioning of *ulema* (i.e., religious authorities) and the varying nature of *fatwas* they produce, depending on the legal and administrative systems of the state that influence the legitimacy and independence of religious legal rulings.²²

The authority of *ulema* in producing legal rulings is closely linked to Max Weber’s theory of legal–rational authority (1864–1920), which derives its

¹⁸Ibn Qayyim Al-Jawziyyah, *I’lām Al-Muwaqqi’in ‘an Rabb Al-‘ālamīn*, III (Lebanon: Dar al-Fikr, n.d.).

¹⁹Muhammad Abid Al-Jabiri, *Agama, Negara Dan Penerapan Syari’ah* (Yogyakarta: Fajar Baru Pustaka, 2001).

²⁰Muslich Shabir, “Muhammad ‘Abduh and Islamic Reform,” *International Journal of Civil Engineering and Technology* 8, no. 7 (2017): 902–10.

²¹Khaleed M. Abou El Fadl, *And God Knows the Soldiers: The Authoritative and Authoritarian in Islamic Discourses*.

²²La Jamaa, “Fatwas of the Indonesian Council of Ulama and Its Contributions to the Development of Contemporary Islamic Law in Indonesia,” *Indonesian Journal of Islam and Muslim Societies* 8, no. 1 (2018): 29.

legitimacy from formally established rules and regulations.²³ Weber classifies authority within social structures into three types: legal authority, traditional authority rooted in customs and traditions, and charismatic authority, which derives from exceptional personal qualities recognized by others. With regard to this third type, Weber also identifies four types of social action that motivate individuals' behavior:²⁴ First, social action oriented toward the expectations or responses of others; second, social action grounded in religious values; third, social action driven by emotional impulses; and fourth, social action shaped by ingrained character formation. This final type of action constitutes the primary focus of this article, as it is used to examine the identity of the MUI, the forms of social action it undertakes, and its influence on broader society.²⁵

The Position of Porcine Elements

A review of documents obtained from the official website of the MUI indicates that there are twelve MUI *fatwas* issued between 2002 and 2022 concerning the use of *haram* substances in medical contexts. The *fatwas* are presented in the following table 1.

Table 1: Fatwas of the Indonesian Ulema Council on Medical Issues (2002–2022)

MUI Authority	Fatwa No.	Subject Matter	Prohibited Element	Legal Ruling
Central MUI	22/2002	Use of Inactivated Polio Vaccine (IPV)	Impurity (<i>najāsah</i>)	The use of medicines derived from impure substances or contaminated by impurity is prohibited (<i>haram</i>).
Central MUI	16/2005	Use of Oral Polio Vaccine (OPV)	Impurity (<i>najāsah</i>)	The use of medicines derived from impure substances or contaminated by impurity is prohibited (<i>haram</i>).
Central MUI	06/2010	Meningitis Vaccine	Porcine element	The Mencevax™ ACW135Y vaccine is prohibited (<i>haram</i>).

²³Khaleed M. Abou El Fadl, *And God Knows the Soldiers: The Authoritative and Authoritarian in Islamic Discourses*.

²⁴Nico J.G. Kaptein, "The Voice of the 'Ulamā': Fatwas and Religious Authority in Indonesia," *Archives de Sociologie Sociales Des Religions* 125, no. 1 (2004).

²⁵Shaheen Whyte, "Are Fatwas Dispensable? Examining the Contemporary Relevance and Authority of Fatwas in Australia," *Oxford Journal of Law and Religion* 11, no. 2–3 (2023).

Aceh MPU	13/2012	Immunization and Vaccination	None	Permissible (<i>mubāh</i>)
Central MUI	30/2013	Medicine and Medical Treatment	None	It is obligatory to use medicines that are pure and permissible (<i>halal</i>), etc.
Central MUI	4/2016	Immunization	None	It is obligatory to use permissible (<i>halal</i>) and pure vaccines, etc.
Aceh MPU	3/2017	Use of Impure Medicines and Medical Services from an Islamic Perspective	Impure (<i>najāsah</i>) substances	Prohibited (<i>ḥarām li-dhātihī</i>); permissible in cases of necessity (<i>ḍarūrah</i>).
Central MUI	33/2018	Use of MR (Measles–Rubella) Vaccine Produced by the Serum Institute of India	Porcine element	Prohibited (<i>ḥarām li-dhātihī</i>), but permissible in cases of necessity (<i>ḍarūrah</i>).
East Java MUI	1/2021	Use of the AstraZeneca COVID-19 Vaccine	Trypsin derived from porcine pancreas	Intrinsically lawful (<i>ḥalāl li-dhātihī</i>).
Central MUI	13/2021	COVID-19 Vaccination while Fasting	None	Permissible (<i>mubāh</i>).
Central MUI	14/2021	Use of the AstraZeneca COVID-19 Vaccine	Trypsin derived from pigs	Prohibited (<i>ḥarām li-dhātihī</i>), but permissible in cases of necessity (<i>ḍarūrah</i>).
East Java MUI	5/2022	Use of Fibrin Sealant Glue	Human fibrinogen and thrombin	Not permissible unless in emergency situations.

Table 1 shows that there are three main types of MUI medical *fatwas* identified. The first type is of general *fatwas* addressing issues, e.g., the importance of medical treatment, immunization, vaccination schedules, or the obligation to use *halal* materials in medical practices (Fatwas No. 13/2012, 30/2013, 4/2016, 3/2017, and 13/2021). The legal classifications in this category are more towards *mubāḥ* or *wājib* (obligatory), especially in relation to actions necessary for medical treatment or health protection, as well as the requirement to use *halal* products. The primary justification lies in the obligation to preserve health and assure the *halal* status of medical substances.

The second type includes *fatwas* concerning the use of impure substances other than pork (Fatwas No. 22/2002 and 16/2005), whilst the third comprises *fatwas* addressing the use of materials derived from or involving porcine elements (Fatwas No. 6/2010, 33/2018, 1/2021, and 14/2021). The legal classification in both the second and third categories tends toward *ḥarām*, except in cases of *ḍarūrah*. The primary justification is based on the *dalīl* (scriptural evidence) and *ulema* opinions. A notable case within this category is Fatwa No. 1/2021 issued by the East Java MUI on the use of the AstraZeneca COVID-19 vaccine produced by AstraZeneca Bioscience Co. Ltd. in Andong, South Korea. This *fatwa* declared the vaccine *halal* based on two main considerations: (1) the trypsin derived from porcine pancreas used by Thermo Fisher had undergone a process of chemical transformation (*istiḥālah/istihlāk*), rendering it pure; and (2) the trypsin was no longer detectable to the naked eye and therefore not considered impure.

These four *fatwas* position porcine elements as being “involved” in the vaccine production process, including vaccines for meningitis (Fatwa No. 6/2010), measles–rubella (Fatwa No. 33/2018), and COVID-19 prevention (Fatwas No. 1/2021 and 14/2021). Fatwa No. 6/2010 states that “in the production process, the vaccine came into contact with materials contaminated by porcine substances” and that “it utilized (*intifā*) porcine elements.” Fatwa No. 33/2018 uses the phrases “the use of vaccines that utilize porcine elements and their derivatives” and “the production process utilizes materials derived from pigs.” Fatwas No. 1/2021 and 14/2021 describe that “during the production process, trypsin derived from porcine sources is used.”

These findings are reinforced by statements from the Assessment Institute for Foods, Drugs, and Cosmetics (LPPOM) of the MUI, which explained that during the preparation of the viral host for the AstraZeneca vaccine, porcine-derived trypsin was used to separate host cells from their microcarriers. Furthermore, during the preparation of recombinant vaccine seeds, porcine trypsin was also used as one of the components in the culture medium to grow *E. coli* for regenerating the plasmid p5713 p-DEST ChAdOx1 nCoV-19. As a result, the AstraZeneca COVID-19 vaccine was classified as *haram* since its production

process utilized trypsin derived from porcine pancreas.²⁶ These *fatwas* apply largely consistent legal reasoning based on Qur'anic teachings that put emphasis on consuming lawful food (Surah al-Baqarah [2]:168; al-Ma'idah [5]:3; al-An'am [6]:145), avoiding self-destruction (Surah al-Baqarah [2]:195), and prohibiting the consumption of pork (Surah al-Baqarah [2]:173), as well as hadith (prophetic traditions) encouraging medical treatment and the preservation of health, all of which are further reinforced by *qawā'id fiqhiyyah* (Islamic legal maxims) and *ulema* opinions. Moreover, the circumstances that led to the issuance of these *fatwas* tend to be similar, including urgent or emergency situations, preventive efforts, the risk of disease transmission, or threats to human life. These *fatwas* also indicate that their formulation involved experts, as outlined in the following table.

Table 2: Experts Involved in the Formulation of MUI Fatwas

Fatwa No.	Experts / Authorities Involved
6/2010	Audit Team of LPPOM–MUI
33/2018	Audit Team of LPPOM–MUI; Director General of Disease Prevention and Control, Ministry of Health of the Republic of Indonesia; Chair of the National Commission on Post-Immunization Adverse Events (KIPI); Board Members of the Indonesian Pediatric Society (IDAI); Members of the Indonesian Technical Advisory Group on Immunization (ITAGI); and Director of PT Bio Farma
1/2021	Audit Team of LPPOM–MUI; Dr. Rizman (Director of AstraZeneca); Dr. rer. nat. apt. Aluicia Anita Artarini, vaccine researcher from the Bandung Institute of Technology (ITB)
14/2021	Audit Team of LPPOM–MUI; President Director of PT Bio Farma; Head of the Indonesian Food and Drug Authority (BPOM); Indonesian Technical Advisory Group on Immunization (ITAGI)

The Authority of Ulema: *Fiqh* and Science

Interviews with multiple informants have illustrated important findings on the relationship between *fiqh* and scientific knowledge. Table 3 presents Muslim

²⁶<https://www.tempo.co/politik/lppom-mui-tegaskan-temuan-unsur-babi-vaksin-astrazeneca-berdasar-kajian-ilmiah-528899>;
<https://khazanah.republika.co.id/berita/qbrqz320/temuan-pemanfaatan-babi-astrazeneca-ini-kata-lppom-mui>.

intellectuals' views on the authority of *fiqh* and science concerning the prohibition of pork-derived elements.

Table 3: Muslim Intellectuals' Perceptions of the Authority of *Fiqh* and Science in the Prohibition of Porcine Elements

Name (Organization)	Views on MUI Authority	Fatwa Formulation Method and Position on <i>Istihālah</i>
Miftahul Huda (Secretary of the MUI Central Fatwa Commission)	The Central MUI tends to rely on the authority of dominant Indonesian <i>fiqh</i> schools; it applies the concept of emergency (<i>darūrah</i>) alongside scientific authority and government authority. The Central MUI issues <i>fatwas</i> on national issues, which apply throughout Indonesia because MUI functions as a single institutional entity.	The prohibition of pork is considered stronger than that of blood or other forbidden substances in the Qur'an; Pork is equated with dogs (based on hadith); Names, forms, or labels of products related to pigs or dogs are deemed prohibited (<i>harām li-ghayrihi</i>); <i>Istihālah</i> is applied only to intoxicant (<i>khamr</i>) and the tanning of animal hides from lawful (<i>halal</i>) animals.
Ma'ruf Khozin (Chair of the East Java MUI Fatwa Commission)	East Java MUI tends to emphasize scientific authority, while the concept of emergency (<i>darūrah</i>) is applied more broadly, including concerns such as vaccine wastage and financial loss.	A shift from specific Qur'anic verses on the prohibition of pork toward more general verses concerning lawful and wholesome food (<i>halālan tayyiban</i>); <i>Istihālah</i> is used as the primary basis for the fatwa regarding porcine elements.
Ridho Nur (Chair of the West Sumatra MUI Fatwa Commission)	MUI is regarded as a single institutional authority in issuing <i>fatwas</i> .	Adopts the approach of the Central MUI <i>fatwa</i> ; <i>Istihālah</i> is recognized as an academically valid approach.
Mahbub Ma'afi (Chair of <i>Bahsul Masail</i> , NU Central Board)	Authority lies within Islamic mass organizations, referring to less dominant <i>fiqh</i> opinions that engage with scientific considerations.	Bases arguments on Qur'anic verses (Surah al-A'raf [7]:157; al-Ma'idah [5]:157); Employs contextual interpretation (<i>munāsabah al-āyāt</i>) and exegetical analysis;

		<i>Istihālah</i> is used as a consideration in the AstraZeneca vaccine fatwa.
Firdaus (Chair of <i>Bahsul Masail</i> , NU West Sumatra)	Recognizes MUI as a unified institutional authority.	Allows the application of <i>istihālah</i> as part of legal reasoning.
Walidi (NU Aceh)	Recognizes MUI as a unified institutional authority.	—
Karsim and Ateng (Regional Leaders of Muhammadiyah Jakarta)	Recognize MUI as a unified institutional authority.	Allow the academic use of <i>istihālah</i> in legal reasoning.
Al Yasa Abubakar (Regional Board of Muhammadiyah Aceh)	Argues that scientific authority must be integrated with <i>fiqh</i> authority.	“Porcine elements” are already the result of <i>ijtihad</i> interpreting the Qur’anic prohibition of “pork”; <i>Istihālah</i> is acceptable as a variable in <i>ijtihad</i> and as a guideline for determining product permissibility.

From the eight representatives of the respective organizations, it can be seen that most informants view the Central MUI and Provincial MUIs as a single institutional authority when it comes to *fiqh* authority. *Fatwas* issued by the Central MUI are therefore considered applicable throughout Indonesia. Some informants maintain that the authority to issue *fatwas* lies primarily with Islamic mass organizations (*ormas*), which ideally refer to established schools of *fiqh*. Others argue that authority in medical matters should rest with science, while another group emphasizes a hybrid approach integrating *fiqh* and scientific authority.

With regard to the test case of *istihālah*, all informants agree to acknowledge the concept at the academic level; however, differences emerge in its practical application. Some respondents maintain that *istihālah* should remain a purely theoretical concept. The Central MUI, for example, limits its application to cases involving *khamr* (intoxicant) and the tanning of animal hides, excluding its application to porcine substances. Accordingly, all products related to pigs or dogs, whether directly or indirectly, are deemed prohibited (*ḥarām li-dhātihī*, i.e., intrinsically unlawful). In contrast, the East Java branches of MUI and NU, as

well as Muhammadiyah figures in Aceh, apply *istihālah* to porcine materials and consider the resulting products permissible. As noted in the *fatwas* discussed above, the formulation process involved expert participation and professional input, as summarized in the following table:

Table 4: Expert Contributions in the Formulation of MUI Fatwas

Source	Experts / Authorities	Key Statements / Views
Fatwa 6/2010	Audit Team of LPPOM–MUI	During the vaccine production process at GlaxoSmithKline Beecham Pharmaceutical (Belgium), the process came into contact with materials contaminated by porcine substances.
Fatwa 33/2018	Audit Team of LPPOM–MUI; Director General of Disease Prevention and Control, Ministry of Health of the Republic of Indonesia; Chair of the National Commission on Post-Immunization Adverse Events (KIPI); Board Members of the Indonesian Pediatric Society (IDAI); Members of the Indonesian Technical Advisory Group on Immunization (ITAGI); Director of PT Bio Farma	- “a. Materials derived from pigs include gelatin obtained from porcine skin and trypsin derived from porcine pancreas; b. Materials with a high likelihood of contact with pigs during the production process include lactalbumin hydrolysate.” - The danger of measles and rubella necessitates immunization.
Fatwa 1/2021	Audit Team of LPPOM–MUI; Dr. Rizman (Director of AstraZeneca); Dr. rer. nat. apt. Aluicia Anita Artarini (vaccine researcher, Bandung Institute of Technology)	In the production of the AstraZeneca vaccine, “no porcine elements are directly used; however, Thermo Fisher, as the primary supplier, uses porcine trypsin to detach host cells from their culture medium. This is followed by a chemical purification process that removes all porcine elements.”

<p>Fatwa 14/2021</p>	<p>Audit Team of LPPOM–MUI; President Director of PT Bio Farma; Head of the Indonesian Food and Drug Authority (BPOM); Indonesian Technical Advisory Group on Immunization (ITAGI)</p>	<p>- “During the preparation stage of the AstraZeneca vaccine host virus, porcine-derived trypsin is used to separate host cells from their microcarriers.” - “During the preparation of recombinant vaccine seeds (from research virus seed to master and working seed stages), porcine trypsin is used as a component of the culture medium to grow <i>E. coli</i> in order to regenerate the p5713 p-DEST ChAdOx1 nCoV-19 plasmid.”</p>
<p>Interview</p>	<p>Dr. Aslinar, Sp.A., M.Biomed (Vice Chair, Muhammadiyah Disaster Management Center, Aceh)</p>	<p>“Porcine trypsin functions as a catalyst to break proteins into peptides and amino acids that serve as nutrients for microbial growth. The microorganisms are then cultured and fermented, after which polysaccharides are extracted as antigens for vaccine production. Next, purification and ultrafiltration processes are carried out, reaching a dilution level of 1:67.5 billion, resulting in a final vaccine product that contains no porcine-derived enzymes.”</p>

Model of *Fiqh*–Science Integration

The model of integrating *fiqh* and science in the MUI *fatwas* addressing the presence of porcine elements in pharmaceuticals can be examined through three aspects: (1) the issues forming the background of the fatwa; (2) the literature references employed; and (3) the application of the theory of *istihālah*. With respect to the first aspect, the relevant issues are presented in the following table.

Table 5: Empirical Phenomena Underlying the Fatwas on Porcine Elements in Pharmaceuticals

<p>Fatwa</p>	<p>Empirical Phenomena</p>
<p>6/2010</p>	<p>a. Meningitis remains a serious health threat for Hajj and Umrah pilgrims. Prevention of the transmission of this dangerous disease can only be achieved through meningitis vaccination; b. The Saudi Arabian government continues to require all individuals visiting the country to undergo meningitis vaccination.</p>

33/2018	“At present, many cases of measles and rubella have been identified in Indonesia. Both diseases are classified as highly contagious and dangerous, as they can cause permanent disability and death”; “To prevent the outbreak of these two diseases, effective efforts are required, one of which is through immunization.”
1/2021	a. “The COVID-19 pandemic remains a global health problem that threatens human life; therefore, efforts are needed to suppress transmission through intensive vaccination”; b. Data from the Ministry of Health show that from March 2020 to March 2021, 37,547 deaths were recorded, indicating the need for effective management through rapid and mass vaccination; c. The Indonesian government sought to secure 426.8 million vaccine doses to meet public needs. Cooperation was established with Sinovac, “yet, by the end of the year, only 122.5 million doses (28.7% of the target) had been produced.” To address the shortfall, the government collaborated with AstraZeneca to supply 113 million doses in 2021. This indicated the target of 426.8 million doses had not yet been achieved.
12/2021	a. “The COVID-19 pandemic continues to pose a global health threat, and one of the efforts to reduce transmission and disease severity is through vaccination”; b. “The success of COVID-19 vaccination is influenced by multiple factors, including vaccine availability, the speed of distribution, and the proportion of the target population vaccinated”; c. “Vaccine availability remains very limited and is therefore highly contested among countries.”

Table 5 shows that the urgent conditions underlying the four *fatwas* were the presence of diseases that posed serious threats to human life and constituted emergency situations, which required immediate government policy responses. Based on these conditions, the legal foundations (*dalīl*) and references to (classical) *fiqh* were constructed.

To build their legal argumentation, the MUI *fatwas* draw upon the opinions of several authoritative *ulema*, which can be categorized into three groups. The first is of general views asserting that seeking medical treatment or taking preventive measures against disease is an obligation, especially in emergency situations.²⁷ The second is of opinions that generally permit medical treatment using impure (*najāsah*) substances, including those derived from pigs,

²⁷Abdul Kārim bin Muhammad al-Raf'i Al-Quzuwaini, *Al-Syarh Al-Kabīr*, IV (Beirut: Dar Al-Fikr, n.d.); Wahbah Al-Zuhailiy, *Al-Fiqh Al-Islami Wa Adillatuhu*, Juz V (Damascus: Dar al-Fikr, 2004).

when no pure alternatives are available or when emergency conditions apply.²⁸ The third is of references that allow medical treatment using impure substances that have undergone transformation. In this category, substances are considered pure when the original impurity is no longer perceptible to the naked eye, even if they originate from pig or dog derivatives. The *ulema* from the Ḥanafī and Mālikī schools regard impure substances that have undergone transformation as pure.²⁹ As mentioned above, in the case studies of *istihālah*, all informants have agreed on the academic validity of this theory; however, there are differences in its practical application. At the level of implementation in the formulation of the four *fatwas*, the position of science (in the context of *istihālah* cases) can be seen in Figure 1.

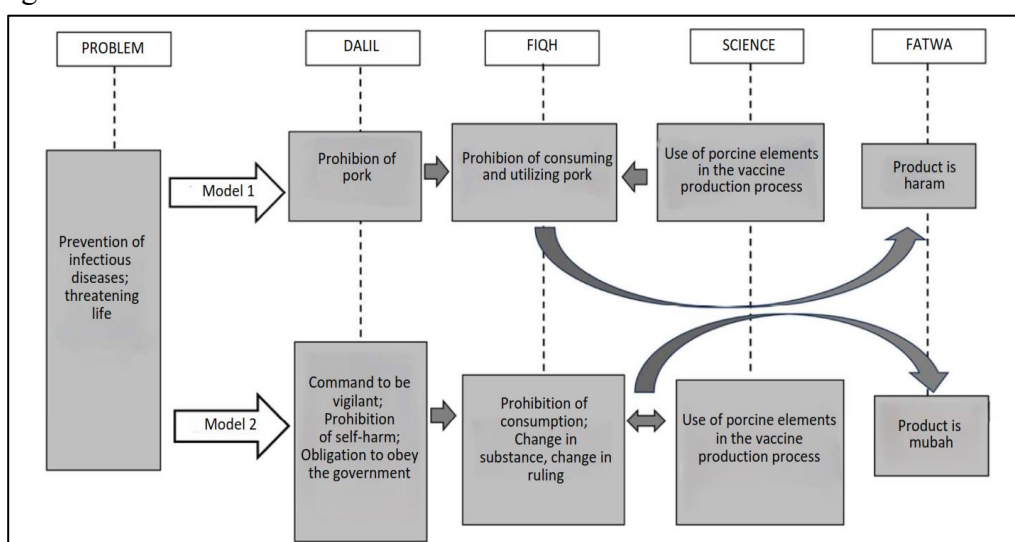


Figure 1. The Relationship between Fiqh and Science in MUI Fatwas Concerning the AstraZeneca Vaccine

Figure 1 shows two models of the relationship between *fiqh* and science in the MUI *fatwas*. Model 1 is applied by the Central MUI, while Model 2 is adopted by the East Java MUI. Model 1 begins with Qur'anic injunctions (*dalīl*) that prohibit pork, followed by references to classical *fiqh* (primarily the Shāfi'ī

²⁸Aḥmad Bin Muḥammad Al-Haitamī, *Tuḥfat Al-Muḥtāj*, IV (Egypt: al-Maktabah al-Tijāriyyah, 1983). Syamsuddin Muhammad al-Khathib Al-Syarbaini, *Mughni Al-Muhtaj Ila Ma'rifah Al-Ma'aniy Al-Fadh Al-Minhaj* (Beirut: Dar al-Kutub al-Ilmiyah, 1994). Syihab al-Din Al-Ramli, *Nihayat Al-Muhtaj Ila Syarh Al-Minhaj*, VII (Mishra: Mustafa al-Bābi al-Halabi, 1967). Abu Muhammad 'Abdullah bin Ahmad bin Muhammad Muwaffiq al-Din al-Jama'ili al-Dimasyqi Ibn Qudamah, *Al-Mughnīy*, vol. 12 (Riyād: Dār 'Alīm al-Kutub, 1997). Al-Ghazali, *Rawḍah Al-Ṭālibīn: Majmū'ah Al-Quṣūr Al-'Awālī*, vol. 7 (Cairo: Maktabah al-Jundī, 1964). Abu Zakariya Yahya bi Syarf Al-Nawawi, *Majmu' Syarh Al-Muhazzab*, VII (Beirut: Dar Al-Fikr, n.d.).

²⁹Aḥmad 'Umairah and Ahmad Salamah al Qalyubi, *Hasyah Qalyubi Wa 'Umairah* (Beirut: Dar al-Fikr, 1995). Abu Hasan Ali bin Muhammad Al-Mawardi, *Al-Hāwī Al-Kabīr*, IV (Beirut: Dar al-Kutub al-'Arabiyah, n.d.). Al-Ramli, *Nihayat Al-Muhtaj Ila Syarh Al-Minhaj*.

school), which maintains the prohibition of pork, whether consumed or otherwise utilized, except in dire situations. Scientific findings indicating that porcine elements are used only as catalysts in the vaccine production process and are no longer present in the final product are interpreted as reinforcing the notion of “utilization” (*intifā*) of porcine elements within the framework of *fiqh*. Hence, Model 1 results in a ruling of prohibition (*ḥarām*).

Model 2, on the other hand, is based on Qur’anic *dalīl* that command vigilance (Surah al-Nisā’ [4]:71), prohibit self-harm (Surah al-Baqarah [2]:195), and require obedience to legitimate authority (Surah al-Nisā’ [4]:59). These are further reinforced by several *ḥadīth* and supported by *fiqh* opinions from various legal schools that elaborate on these verses, define impurity (*najāsah*), and affirm the purity of substances that have undergone complete transformation (*istihālah*), as articulated in the Mālikī and Ḥanafī schools. Scientific evidence is used to strengthen this position, which ultimately leads to a ruling of permissibility (*mubāḥ*).

Integration of *Fiqh* and Science in the Medical Fatwas of the Indonesian Ulama Council

This study highlights a number of essential findings. First, the porcine elements examined in the MUI medical *fatwas* pertain to enzymes that function as catalysts to break down proteins or act as “molecular scissors” in the replication process of vaccine viruses, rather than to pork meat as explicitly prohibited in the Qur’anic texts. The interaction between enzymes and substrates results in the formation of products while the enzyme itself is regenerated. This principle represents a catalytic process in which a substance facilitates faster reactions by lowering activation energy, thereby enabling the production of larger quantities of product. These kinds of interactions typically involve van der Waals forces or what are commonly referred to as physical bonds involving direct contact.³⁰ Thus, in this context, the role of porcine elements is that of a *utilized* substance rather than one that is *consumed*.

Second, the authority of classical *fiqh* scholars significantly influences the positioning of porcine elements within the MUI *fatwas*. The institutional authority of the Central MUI also plays a significant role in ensuring the broad acceptance of its *fatwas*. Only NU and the East Java MUI appear to “diverge” from this authority, along with Muhammadiyah at the provincial level, which tends to rely on individual scholarly reasoning. Third, the MUI *fatwas* addressing the use of porcine elements for medical purposes, especially in the production of the AstraZeneca vaccine, suggest that the integration of *fiqh* and science has already existed in a “ready-made” form. This integration is embedded within the classical

³⁰Muhammad Yusuf Alamudi, “Prediksi Struktur Protein 3 Dimensi Dan Vaksin Peptide SARS COV-2,” 2023, 54–57.

fiqh tradition itself; the MUI merely selects particular models and legal opinions from within that tradition.

An unexpected finding of this study is that, despite belonging to the same institutional body, the East Java MUI issued a *fatwa* that differed from that of the Central MUI. These differences include the use of *dalīl*, references to classical *fiqh*, interpretations of *ḍarūrah*, and the application of scientific considerations within the framework of *istiḥālah*. This circumstance can be understood through the theoretical perspective that *ijtihād* is inherently relative and open to divergence³¹ Differences have emerged even at the level of “selecting” the *dalīl* since the Qur’an and Hadith allow for multiple interpretive possibilities. This kind of flexibility thus contributes to the richness of classical *fiqh*, which enables later *ulema* to adopt positions that align with particular contexts or objectives. In this sense, *fiqh* accommodates scholarly inclinations (*niyyāt*), which, alongside time, place, circumstance, and custom, serve as factors influencing legal change³² Within this context, beyond purely rational-academic considerations, the East Java MUI has demonstrated its own orientation by selecting specific *fiqh* opinions while setting aside others, even when those opinions represent the dominant authority within Indonesian Islamic jurisprudence, i.e., the Shāfi‘ī school

Further, this study also identifies three other important points. First, the MUI tends to rely on early interpretations (*classical fiqh*) rather than producing new interpretations of the texts. The Central MUI primarily follows the Shāfi‘ī school, whereas the East Java MUI tends to adopt cross-*madhhab* positions. Second, the MUI responds to contemporary medical issues by involving scientific experts and various relevant stakeholders to elaborate on the problems under review. Third, the *ijtihād* applied tends to take the form of *ijtihād intiqā’ī* (selecting existing opinions within the classical *fiqh* tradition), rather than *ijtihād insyā’ī* (formulating new legal conclusions for issues not previously addressed by earlier *ulema*³³

Although the East Java MUI issued a *fatwa* that was different from that of the Central MUI, it still falls within the category of *ijtihād intiqā’ī* since the legal reasoning can be traced back to classical *fiqh* sources. Additionally, from the perspective of authority, the *fatwa* also appears to have been influenced by NU. The Bahtsul Masail Institute of the Nahdlatul Ulama Executive Board (LBM

³¹Sugeng Wanto, “Metodologi Klasifikasi Qathiy Dan Zhanniy Menurut Imam Asy-Syathibi,” *Ibnu Abbas: Jurnal Ilmu Alquran Dan Tafsir* 2, no. 2 (2020).

³²Jörg Kammerhofer, “Beyond the Res Judicata Doctrine: The Nomomechanics of ICJ Interpretation Judgments,” *Leiden Journal of International Law*, 2023, p. 1–27. Nuray Karaman, “The Status of Women on Turkey: The Intersection of Gender, Politics and Religion,” *Journal for the Study of Religions and Ideologies* 20, no. 58 (2021), p. 193–207. Al-Jawziyyah, *I’lām Al-Muwaqqi’ in ‘an Rabb Al-‘ālamīn*.

³³Anugrah Reskiani et al., “Reform Methods of Islamic Inheritance Law in Indonesia in Jurisprudence,” *Juris: Jurnal Ilmiah Syariah* 21, no. 1 (2022), p. 39–51.

PBNU) issued Fatwa No. 01 of 2021 concerning the permissibility of the AstraZeneca vaccine, stating that: “The AstraZeneca vaccine is permissible (*mubāḥ*) for use not only because it is harmless, but also because it is pure. Therefore, the AstraZeneca vaccine may be administered to humans even under normal conditions, let alone in emergency situations.” This *fatwa* was issued on March 29, 2021, very close in time to the East Java MUI fatwa (No. 1/2021) issued on March 21, 2021, which indicates that there was a possible influence of NU’s authority. This phenomenon can be explained through Max Weber’s concept of authority, i.e., charismatic authority, which in this context is the “charisma” of NU.

Nevertheless, from the perspective of Indonesia’s legal hierarchy, the MUI *fatwas* do not possess binding legal force. The institution is neither a state body nor a formal representative of the state; its *fatwas* bind only those Muslims who choose to follow them. Even legally, the MUI *fatwas* cannot compel universal compliance among Muslims. They function as institutional religious opinions that may be followed or disregarded by the Muslims. The Presidential Regulation of the Republic of Indonesia No. 151 of 2014 concerning Funding Assistance for the Indonesian Council of Ulema states that the MUI is “a forum for consultation among ulema, Muslim leaders, and intellectuals in guiding the *ummah* and developing Islamic life, as well as enhancing Muslim participation in national development” (Article 1). It further states that “the MUI serves as a partner of the government in implementing programs for the development of Islamic life” (Article 2). Within this framework, the MUI *fatwas* become legally binding only when incorporated into formal legislation, as seen in several *fatwas* of the National Sharia Council (DSN–MUI) that have been adopted into positive law. The stronger authority of provincial-level MUI institutions compared to the Central MUI is also reflected in Law No. 11 of 2006 on the Governance of Aceh. This law states that the Ulema Consultative Council (Majelis Permusyawaratan Ulama/MPU) is “a council composed of *ulema* and Muslim intellectuals that serves as a partner of the Aceh Government and the Aceh Regional House of Representatives (DPRA).” Therefore, differences among MUI *fatwas* can be understood within this institutional and legal framework.

Moreover, from the perspective of *fiqh* dynamics, the East Java MUI *fatwa* reflects the early development of a more progressive approach within the MUI, which illustrates an effort to move away from the dominant mainstream opinions toward less commonly adopted interpretations. The use of *istiḥālah* based on the views of the Ḥanafī and Mālikī schools represents this shift. The East Java MUI also appears to reconsider the concept of *ḍarūrah*, not only in its narrow sense, i.e., an unexpected and extreme condition involving danger, starvation, or immediate threat, but also in a broader sense. In the context of this study, this includes the potential waste of state finances resulting from the procurement of large quantities of vaccines that must be used within a limited timeframe.

There are several factors that contribute to these findings, as follows. The first factor is that pork represents a major point of prohibition in Islam, given that Allah explicitly forbids pork consumption in the Qur'an (e.g., Surah al-Baqarah [2]:173; al-Mā'idah [5]:3; al-An'ām [6]:145; al-Nahl [16]:115). Early *ulema*, however, differed in their interpretations of this prohibition. The majority of *ulema* understood the phrase *lahm al-khinzīr* (literally "the flesh of swine") to refer to the entire animal, whereas the Zāhiri school interpreted it strictly as "pork flesh," not the whole body of the pig.³⁴ Abū Hanīfah and Imām Mālik permitted the use of pig bristles, Abū Yūsuf considered it reprehensible (*makrūh*), while Imām al-Shāfi'ī deemed it *haram*.³⁵ These debates form the foundation of differing views on "consumption" versus "utilization." When the concept of "pork" is paired with "consumption," interpretive possibilities expand; however, when paired with "utilization," interpretations become more restrictive. The latter position has been adopted by the majority of classical *ulema* and continues to dominate contemporary Indonesian Islamic legal thought.

The second is that classical *fiqh* reasoning tends to rely on *istinbāt*, i.e., deriving legal rulings directly from the Qur'an and Hadith. This differs from *istidlāl*, which involves reasoning from broader principles when explicit *dalīl* (textual evidence) is absent.³⁶ In principle, the MUI *fatwas* on the medical use of porcine elements falls under *istidlāl*; however, in practice, it leans more heavily toward *istinbāt*, thereby limiting the space for scientific reasoning. The identification of porcine elements within the *fatwas* can also be seen as a product of *istidlāl* since it draws upon interpretive reasoning that is immediately applicable.

Classical *fiqh* contains a wide range of opinions, which is often contradictory, that remain underexplored due to the dominance of majority views. These marginal opinions deserve further scholarly attention to demonstrate that, as products of *ijtihad*, they are equal in epistemological status to majority views, i.e. inherently relative. Besides, contemporary issues are ever evolving and may have the potential to exceed the explanatory capacity of classical *fiqh* alone. Therefore, strengthening the methodology of *istidlāl*, by directly engaging with the ethical objectives (*maqāṣid*) of the Qur'an and Prophetic hadith and supported

³⁴Muhammad bin Ahmad al Anshari Al-Quthubi, *Al-Jami Li Ahkam Al-Quran* (Cairo: Dar al Kutub al-Mishriyah, 1964); Muhammad Ali Al-Sabuni, *Tafsīr Ayāt Al-Aḥkām Min Al-Qur'ān*, I (Cairo: Dār al-Ṣabuni, 2007).

³⁵Al-Sabuni, *Tafsīr Ayāt Al-Aḥkām Min Al-Qur'ān*.

³⁶Abu Ya'la Muhammad bin Husain, *Al-'Uddah Fī Uṣūl Al-Fiqh*, II (Beirut: Bidūn Nāsyir, 1990) ; Abu Ya'la Muhammad bin Husain, *Al-'Uddah Fī Uṣūl Al-Fiqh*, II (Beirut: Bidūn Nāsyir, 1990); Al Yasa' Abubakar, *Metode Istislahiah: Pemanfaatan Ilmu Pengetahuan Dalam Ushul Fiqh* (Banda Aceh: Bandar Publishing dan Pascasarjana IAIN Ar-Raniry Banda Aceh., 2012).

by modern science, is essential for producing more contextually appropriate legal responses.

Nonetheless, this study remains limited to cases involving porcine elements used for medical purposes that ultimately involve products intended for human consumption. There are also other issues related to the utilization of pigs, e.g., the use of pigskin in various tools and products, that require further investigation. Future studies should move beyond porcine materials to examine *fatwas* concerning other animals or substances with uncertain *halal* status as they could expand the scope of analysis and enable a more comprehensive mapping of MUI *fatwas*. Additionally, beyond the *halal-haram* dietary concerns, any *fatwa* put forth by the MUI and other Islamic institutions in regard to advancements in modern science also needs extensive academic scrutiny. This approach would facilitate the identification of existing integration patterns and aid in the formulation of more robust and contextually pertinent models of integration between *fiqh* and contemporary science.

Conclusion

This study illustrates the MUI's commitment to employing an integrative approach between science and *fiqh* in the formulation of its *fatwas*. Still, the strong reliance on classical *fiqh ulema* is quite evident, which results in the role of science being largely confirmatory rather than substantively influential. In other words, the authority of classical *fiqh* continues to dominate over scientific authority. The authority of science is often overshadowed by classical *fiqh* authority and, particularly in the case of MUI *fatwas*, by the institutional authority of the Central MUI itself. The East Java MUI *fatwa*, which differs from that of the Central MUI, may have been influenced by PBNU, considering that many of its members are affiliated with Nahdlatul Ulama. The East Java MUI also demonstrates a more open model of *fiqh-science* integration by departing from mainstream *fiqh* positions and adopting minority *fiqh* opinions that align more closely with scientific findings and government policy. Thus, the divergence between the Central MUI and the East Java MUI regarding the legal status of porcine elements for medical purposes can be explained through the lens of authority theory. Nevertheless, this study remains limited and calls for further research, especially on cases in which no clear precedents or references exist in classical *fiqh*, as well as studies utilizing alternative analytical approaches. From a scientific perspective, vaccines, one of the most effective solutions for controlling the COVID-19 pandemic, continue to be developed, even though several biotechnology companies have already achieved significant breakthroughs. Ongoing development is necessary due to limitations in current vaccine structures, which are primarily based on messenger RNA (mRNA) rather than peptide-based platforms. Peptide-based vaccines provide more advantages

in terms of specificity, purity, production capacity, and cost efficiency, and thus, continued research into peptide-based COVID-19 vaccines is essential.

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